

ELUCIDATING THE ORIGINS OF HETEROSEXUAL SEX DIFFERENCES IN
MATING PSYCHOLOGY BY EXAMINING THE BEHAVIOUR OF HOMOSEXUAL
MEN AND WOMEN

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ABSTRACT

Elucidating the Origins of Heterosexual Sex Differences in Mating Psychology by Examining the Behaviour of Homosexual Men and Women

Various competing theoretical frameworks have been invoked to explain heterosexual sex differences in mating psychology. Chapter One provides examples of such frameworks, details how considering both heterosexual and homosexual men and women can help identify the most tenable frameworks, and reviews previous research comparing the mating psychology of heterosexual and homosexual men and women. Chapter Two demonstrates the utility of this comparative method by examining the mate retention behaviour of heterosexual and homosexual men and women. Where heterosexual sex differences exist, the mate retention behaviour of homosexual men is largely sex-typical while that of homosexual women is sex-atypical. The significance of these results for explaining heterosexual sex differences in mate retention is discussed. Chapter Three discusses how the data presented and reviewed here might inform our understanding of the psychological mechanisms underlying mating psychology as well as the development of sexual orientation in men and women.

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CHAPTER ONE

Explaining Heterosexual Sex Differences in Mating Psychology

ABSTRACT

A great deal of theoretical consideration and empirical work has been directed toward understanding the bases of male and female sexuality. Here, I outline some theoretical perspectives that have been invoked to explain the ultimate and proximate bases of heterosexual sex differences in mating psychology and behaviour. When data support two or more theoretical perspectives, it can be difficult to discern which provides the most tenable explanation for the heterosexual sex difference in question. With this in mind, I detail how drawing comparisons of the mating psychology and behaviour of heterosexual and homosexual men and women can help hone explanations for heterosexual sex differences in mating psychology and behaviour. Specifically, this comparative method can help identify the cognitive, social, and biological factors that are most likely to give rise to the heterosexual sex difference in question. In addition, I review previous research comparing domains of mating psychology and behaviour in heterosexual and homosexual men and women, and comment on what this research indicates about the development of male and female mating psychology.

Explaining male and female sexuality has been of interest to philosophers and theorists for centuries (e.g., St. Thomas Aquinas (*circa* 1274 A.D.), 1955; Darwin, 1871; Freud, 1930; Gagnon & Simon, 1973; for discussion of Ancient Chinese philosophies regarding sexuality, see Goldin, 2002; Mead, 1950; Plato (*circa* 385 B.C.); 1993). The progression from theoretical conjecture to empirically based knowledge was aided substantially by extensive volumes on the sexuality of men and women, which were published by Kinsey and colleagues in the mid-twentieth century (Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953). These classic works were followed by further scientific inquiries in which theoretical tenants regarding the ultimate and proximate bases of sex differences in sexuality were investigated empirically using human subjects as well as animal models (e.g., Bateman, 1948; Buss & Schmitt, 1993; Gangestad & Thornhill, 1997; Phoenix, Goy, Gerall, & Young, 1959; Zucker, Bradley, Oliver, Blake, Fleming, & Hood, 1996).

The past fifty-plus years of empirical study has provided researchers with a long list of male-female differences in sexuality. With respect to mating psychology and behaviour in particular, men and women differ for a number of domains, including sexual arousal cycles (e.g., Masters & Johnson, 1966), courtship displays (e.g., Buss, 1988a), patterns of genital arousal (e.g., Chivers, Rieger, Latty, & Bailey, 2004), neural substrates relevant to sexual behaviour (e.g., Allen, Hines, Shryne, & Gorski, 1989; Senior, 2003), masturbation (e.g., Gerressu, Mercer, Graham, Wellings, & Johnson, in press; Oliver & Hyde, 1993), sexual fantasy (for review, see Leitenberg & Henning, 1995), infidelity concerns (e.g., Buss, Larsen, Westen, & Semmelroth, 1992), sexual coercion (for review, see Lalumière, Harris, Quinsey, & Rice, 2005; also see Malamuth, Huppini, & Paul, 2005), and mate preferences (e.g., Buss,

1989). What the past fifty-plus years of research has not yielded, however, is consensus among researchers as to the theories and processes that account for many of these sex differences.

Perhaps the most long-standing and prevalent of these theoretical debates is the one that exists between those who assert that sex differences in mating psychology and behaviour are the result of biological processes and those who emphasize socialization processes. Among the former, ultimate explanations have focused on detailing how evolutionary processes have favoured different reproductive strategies in men and women, leading to sexual dimorphisms for various aspects of mating psychology and behaviour (for review, see Schmitt, 2005). For example, due to their higher ceiling on lifetime reproduction, men have been selected to prefer having greater numbers of sexual partners than women. In contrast, proximate explanations focus on the roles of sex hormones (e.g., androgens) in producing sexual differentiation of the brain and, subsequently, behaviour (e.g., Adkins-Regan, 1998; Bakker, Brand, van Ophemert, & Slob, 1993; Brand, Kroonen, & Slob, 1991; Dominguez-Salazar, Portillo, Baum, Bakker, & Paredes, 2002; de Jonge, Muntjewerff, Louwerse, & van de Poll, 1988; Kelliher & Baum, 2002; Phoenix et al., 1959; Pomerantz, Goy, & Roy, 1986; Pomerantz, Roy, Thornton, & Goy, 1985; Zucker et al., 1996). These proximate biological mechanisms detail how evolved sex differences in mating psychology and behaviour are manifested via developmental processes. The presence of androgens during early development, for example, appears to influence the development of interest in having multiple sexual partners. Not only do men, who are exposed to elevated levels of androgens, exhibit interest in having a high number of sexual partners, but women who show

developmental indicators of elevated prenatal androgen exposure (e.g., low 2D:4D) are also more likely to exhibit this male-typical interest (Clark, 2004).

In contrast, the socialization perspective views sex differences in mating psychology and behaviour as arising from culturally based notions of what constitutes masculinity and femininity (e.g., Simon & Gagnon, 1987). According to this perspective, such notions exist in their current forms due to the patterns of male dominance and female servitude that are both products of a patriarchal social structure. Through proximate processes of social learning (e.g., interaction with family, peers, romantic partners, societal institutions), these notions pervade individuals' ideas of gender normative attitudes, beliefs, and desires, thus providing a catalyst for the emergence of sex differences in mating psychology and behaviour. For example, according to Byers (1996), men learn through socialization that being masculine involves being promiscuous, and that sexually coercive behaviour is a permissible means of overcoming women's resistance to sexual activity. As a result, men exhibit elevated levels of sexually coercive behaviour compared to women.

It has also been noted that cognitive processes may affect mating psychology and behaviour (Bailey, Gaulin, Agyei, & Gladue, 1994; Walen & Roth, 1987). For example, individuals may evaluate whether cultural notions of gender normative psychology and behaviour are appropriate for influencing how they behave. If individuals reject such notions, this might affect how they express certain aspects of mating psychology and behaviour. An illustration of this point comes from a study by de Visser, Smith, Richters, and Rissel (2007), which explored associations between religiosity and sexual attitudes and behaviour. Among men, for example, greater religiosity was associated with more conservative attitudes towards, and thus, less interest in, viewing pornographic material and engaging in

promiscuous sexual behaviour. Generally speaking, men tend to be highly interested in these domains compared to women (e.g., Bailey et al., 1994; Buss & Schmitt, 1993).

Certainly, the existence of multiple theoretical perspectives for explaining heterosexual sex differences in mating psychology and behaviour is crucial to scientific inquiry. Without a variety of such perspectives, a number of processes of potential importance to the development of heterosexual sex differences in psychology and behaviour may go uninvestigated. Yet, such variety can also lead to significant challenges. These challenges arise in cases where the heterosexual sex differences observed can be used to support two or more competing theoretical perspectives. When faced with such a situation, it is difficult to discern which of the competing perspectives accurately depicts the processes that lead to the heterosexual sex difference in question.

Examining how sexual orientation differences in mating psychology and behaviour relate to heterosexual sex differences in mating psychology and behaviour can help resolve this problem. Symons (1979) was the first to point out the utility of such an examination. He argued, "Homosexuals are the acid test for hypotheses about sex differences in sexuality" (p. 292). The basis of this argument is that sexual activity should be unconstrained by the opposite sex in a homosexual context and, as such, "the sex lives of homosexual men and women-who need not compromise sexually with members of the opposite sex-should provide dramatic insight into male sexuality and female sexuality in their undiluted states" (Symons, p. 292). It is clear from Symons's prose that he viewed examining how sexual orientation differences relate to heterosexual sex differences as an opportunity to assess how the presence of the opposite sex influences the expression of heterosexual men and women's mating psychology and behaviour. Although Symons is correct in his assertion, he does not

fully detail the extent to which examining heterosexual and homosexual men and women is useful to our understanding of male and female mating psychology and behaviour.

Bailey et al. (1994) were the first to detail explicitly and comprehensively how consideration of both heterosexual and homosexual men and women could provide a window on the development of mating psychology and behaviour. As Bailey et al. pointed out, doing so makes it possible to hone in on those theoretical perspectives and explanations that are tenable while eliminating those that are not. When two groups do not differ with respect to a particular domain of mating psychology and behaviour, cognitive, social, and biological factors shared by both groups represent viable candidates for explaining the development of the trait in question. In contrast, when two groups do differ with respect to a particular domain of mating psychology and behaviour, cognitive, social, and biological factors that are not shared by the members of the groups being considered are possible explanations. Therefore, Bailey et al. (1994) regard examining how sexual orientation relates to heterosexual sex differences in mating psychology and behaviour as an exploratory tool that can help guide future research by generating and eliminating candidate explanations.

In sum, then, Symons (1979) emphasized that the mating psychology and behaviour of homosexual men and women should be relatively less constrained because individuals in same-sex relationships do not have to compromise sexually with opposite-sex partners. As such, examining how sexual orientation differences relate to heterosexual patterns could provide insight into how the presence of the opposite sex influences the mating psychology and behaviour of heterosexual men and women. In contrast, Bailey et al. (1994) go one step further by pointing out that comparing the mating psychology and behaviour of heterosexual and homosexual men and women can help assess how cognitive, social, and biological

factors, in addition to the presence of the opposite sex, influence the development of the heterosexual sex difference in question.

At present, a handful of studies in the literature have compared the mating psychology and behaviour of heterosexual and homosexual men and women. These studies have examined the content and frequency of sexual fantasies, interest in uncommitted sex, interest in visual sexual stimuli, importance placed on partner physical attractiveness, importance placed on partner social status, sociosexuality, sexual versus emotional infidelity concerns, partner age preferences, the characteristics preferred in mates (e.g., honesty, intelligence, kindness), patterns of genital arousal, and patterns of sexual attraction to men and women (Bailey et al., 1994; Bringle, 1995; Chivers, 2006; Chivers et al., 2004; Harris, 2002; Kenrick, Keefe, Bryan, Barr, & Brown, 1995; Latty, Sullivan, & Bailey, 2004; Leitenberg & Henning, 1995; Lippa, 2007; Price, Allensworth, & Hillman, 1985; Rullo, Kinnish, & Strassberg, 2006; Silverthorne & Quinsey, 2000). When pooled together, assessments of within-sex sexual orientation differences for sexually dimorphic aspects of mating psychology and behaviour reveal different patterns for men and women.

Apart from sexual orientation, the mating psychology and behaviour of homosexual men is similar to that of heterosexual men. Hence, the mating psychology of homosexual men appears to be sex-typical. With respect to the frequency and content of sexual fantasy, heterosexual and homosexual men tend to be similar (Leitenberg & Henning, 1995; Price et al., 1985). Both groups of men have similar sexual partner age preferences (Kenrick et al., 1995; Silverthorne & Quinsey, 2000). Like heterosexual men, homosexual men are highly interested in uncommitted sex, visual sexual stimuli, and having young and physically attractive sexual partners (Bailey et al., 1994; Kenrick et al., 1995). In addition, both groups

of men place relatively little importance on the social status of their partners (Bailey, et al., 1994). Although heterosexual and homosexual men might differ slightly in how important they deem particular characteristics in their mates (e.g., good looks, intelligence, honesty), they tend to be more similar to each other in terms of their mate preferences than they are to women (Lippa, 2007). Both heterosexual and homosexual men tend to show category-specific (i.e., clear preference for one sex over the other) patterns of sexual attraction and genital arousal (Chivers, 2006; Chivers et al., 2004; Latty et al., 2004; Rieger, Chivers, & Bailey, 2005; Rullo et al., 2006).

One domain of mating psychology and behaviour for which data have suggested that homosexual men may be sex-atypical is concern with a partner's emotional versus sexual infidelity. A number of studies have shown that, compared to heterosexual men, homosexual men are more concerned with a partner's *hypothetical* emotional infidelity than they are with a partner's *hypothetical* sexual infidelity (Bailey et al., 1994; Bringle, 1995; Harris, 2002). However, Harris has shown that no such sexual orientation differences exist in men in terms of their reactions towards a partner's *actual* emotional or sexual infidelity, and has argued that these results cast doubt on the validity of the hypothetical measures used in previous research. As such, it seems most appropriate to regard homosexual men as sex-typical for this domain of mating psychology and behaviour as well.

Another domain of mating psychology and behaviour for which heterosexual and homosexual men differ is sociosexuality, a construct that takes both interest in sex and history of partnered sex into account (Bailey et al., 1994). Homosexual men score higher on sociosexuality. However, as Bailey et al. remark, this within-sex sexual orientation difference is a consequence of homosexual men's greater numbers of sexual partners, and not a

difference in interest in casual sex. This interpretation is in line with Symons's (1979) assertion that individuals' sexuality should be less constrained in same-sex contexts. Homosexual men, therefore, do not have higher sociosexuality scores because they inherently differ in terms of their mating psychology. Rather, their higher sociosexuality is the result of their male-typical proclivities for sex and variety of sexual partners as well as the fact that their male sexual targets are likely to share these proclivities. Given these considerations, it is most reasonable to maintain that homosexual men are sex-typical for this domain of mating psychology as well.

In general, then, it appears that, apart from sexual partner preference, homosexual men are sex-typical for aspects of mating psychology and behaviour for which heterosexual sex differences exist. In line with the logic provided by Bailey et al. (1994), the development of these aspects of men's mating psychology and behaviour are most likely accounted for by cognitive, social, and biological factors shared by both groups of men. The field of candidate explanations can be circumscribed further still. Because men tend to differ from heterosexual women for these domains, hypotheses that emphasize factors that are not shared by men, regardless of sexual orientation, and heterosexual women are also viable candidate explanations.

As mentioned, comparisons of the mating psychology and behaviour of heterosexual and homosexual women have yielded a different pattern relative to that described for heterosexual and homosexual men. Whereas homosexual men show sex-typical characteristics, homosexual women show a more mosaic pattern, with some aspects of mating psychology being sex-typical and others being sex-atypical. Heterosexual and homosexual women are similar in terms of the frequency and content of sexual fantasy

(Leitenberg & Henning, 1995; Price et al., 1985). Homosexual women tend to be sex-typical for interest in uncommitted sex, sexual versus emotional infidelity concerns, importance of a partner's physical attractiveness, and sociosexuality (Bailey et al., 1994; Harris, 2002).

Although heterosexual and homosexual women might differ slightly in how important they deem particular characteristics in their mates (e.g., intelligence, dependability, honesty), they tend to be more similar to each other in terms of their mate preferences than they are to men (Lippa, 2007). Also, like heterosexual women, homosexual women do not exhibit a category-specific pattern of genital arousal in response to sexually explicit stimuli depicting male-male, male-female, and female-female sexual activity (Chivers et al., 2004). In contrast, heterosexual and homosexual women differ in terms of their interest in visual sexual stimuli, the importance they place on a partner's status (Bailey et al., 1994), as well as their partner age preferences (Kenrick et al., 1995; Silverthorne & Quinsey, 2000). Also, homosexual women show category-specific patterns of sexual attraction (Rullo et al., 2006) and genital arousal in response to stimuli depicting individuals engaged in masturbation (Chivers, 2006) whereas heterosexual women do not.

According to the logic provided by Bailey et al. (1994), the development of aspects of women's mating psychology and behaviour for which homosexual women are sex-typical are most likely accounted for by cognitive, social, and biological factors shared by both groups. Furthermore, factors that are not shared by women, regardless of sexual orientation, and heterosexual men are also viable candidate explanations. Meanwhile, the development of aspects of women's mating psychology for which homosexual women are sex-atypical are most likely accounted for by those factors that are not shared by both groups of women.

In this chapter, I have outlined how comparing the mating psychology and behaviour of heterosexual and homosexual men and women can help foster greater understanding of the developmental processes by which heterosexual sex differences in mating psychology and behaviour arise. In the next chapter, I examine how sexual orientation relates to heterosexual patterns for one domain of mating psychology and behaviour in particular, mate retention. In doing so, I demonstrate how using this comparative method as an exploratory tool can help hone explanations for heterosexual sex differences in mating psychology and behaviour.

CHAPTER TWO

Mate Retention Behaviour of Men and Women in Heterosexual and Homosexual Relationships

ABSTRACT

Comparing the behaviour of heterosexual and homosexual persons can provide insight into the origins of heterosexual sex differences in psychology. Evidence indicates that, aside from sexual partner preference, the mating psychology of homosexual men is sex-typical whereas that of homosexual women tends to be more sex-atypical. The current study examines one aspect of mating psychology, mate retention behaviour, and tests whether homosexual men and women are sex-typical or sex-atypical for those mate retention tactics for which heterosexual men and women differ. Men and women in heterosexual and homosexual relationships were asked to provide information regarding their partners' mate retention behaviour by using the Mate Retention Inventory Questionnaire. Heterosexual men and women differed significantly for six of the 19 mate retention tactics considered. With respect to the six mate retention tactics that showed heterosexual sex differences, homosexual men behaved in a sex-typical manner for five of the tactics, whereas homosexual women behaved in a sex-atypical manner for all six tactics. The significance of these findings for explaining the origins of the mate retention behaviour of heterosexual men and women is discussed.

INTRODUCTION

In humans, long-term relationships with reproductive partners (i.e., mates) are important for the lifetime reproductive success of men and women (e.g., Buss, 1988b; Mellen, 1981). Consequently, after establishing such a relationship, an individual has to successfully retain his or her mate. Citing evidence for the non-monogamous mating systems that characterized the human evolutionary past, as well as the cross-cultural ubiquity of divorce, Buss and Shackelford (1997) argued that mate retention was, and remains, a significant problem for humans. Further support for this argument is provided by studies examining individuals' experiences with mate poaching (i.e., situations in which an individual attracts, or attempts to attract, another individual away from an existing mating relationship to form a new mating alliance). These studies, which have been conducted in a variety of cultural settings, reveal that both men and women are poached from their mates at appreciable frequencies (Davies, Shackelford, & Hass, 2007; Schmitt et al., 2004; Schmitt & Buss, 2001). In general, individuals can retain mates by competing with same-sex rivals, maintaining attractiveness, and intimidating mates to remain in the relationship.

Research shows that the mate retention behaviour of heterosexual men and women differs in terms of the tactics they use to compete with their same-sex rivals, as well as the tactics they use to remain attractive to their reproductive partners (Buss, 1988c; Buss & Shackelford, 1997). To avoid the loss of their reproductive partners to same-sex rivals, men conceal their mates, make threats toward sexual competitors, and act violently toward sexual competitors. Men's use of these latter two tactics fits well with previous research demonstrating that men exhibit physical aggression more frequently, and with greater severity, than women (Campbell, 2005; Daly & Wilson,

1988). In addition, men attempt to remain attractive to their relationship partners by acquiescing to their partners' wishes and demonstrating their wealth. Men's use of these tactics to retain women dovetails nicely with previous research demonstrating that women place greater importance than men on a partner's willingness to form long-term bonds and provide resources that can be allocated to the production of offspring (for a review of this literature, see Schmitt, 2005).

In contrast, women avoid the loss of their reproductive partners to same-sex rivals by punishing their partners' threats of being sexually unfaithful and by verbally declaring their relationships with their partners to others. Women's use of these two tactics fits well with previous research demonstrating that women exhibit relational or indirect aggression more frequently than men (Campbell, 2005). In addition, women attempt to retain their relationship partners by threatening that they will not be sexually faithful and enhancing their physical appearance. Women's use of these tactics to retain men dovetails nicely with previous research demonstrating that men place greater importance than women on a partner's sexual fidelity and physical attractiveness (for a review of this literature, see Schmitt, 2005).

Numerous perspectives have been advanced to account for sex differences in humans, including sex differences in mating psychology (e.g., Bem, 1981; Collaer & Hines, 1995; Eagly & Wood, 1999; Schmitt, 2005; Simon & Gagnon, 1987; Symons, 1979; Walen & Roth, 1987). As noted in Chapter One, comparing the mating psychology of homosexual and heterosexual men and women can help differentiate among several broad cognitive, social, and biological hypotheses regarding the origins of heterosexual

sex differences in mating psychology, thereby narrowing the field of candidate hypotheses (Bailey et al. 1994; Symons, 1979).

There are four possible ways that sexual orientation might relate to heterosexual sex differences in mating psychology. First, heterosexual men and women may differ, but same-sex individuals may exhibit identical behavioural patterns independent of their sexual orientation (Bailey et al., 1994). Second, heterosexual men and woman may differ and homosexual individuals may be sex-atypical with respect to a particular sexually dimorphic aspect of mating psychology (Bailey et al., 1994). In such instances, homosexual individuals may more closely resemble opposite-sex heterosexual individuals in terms of the particular aspect of mating psychology in question or they may exhibit a pattern that is intermediate between same-sex and opposite-sex heterosexuals. Third, homosexual persons may exhibit a pattern that exaggerates a heterosexual sex difference above and beyond that exhibited by their same-sex heterosexual counterparts (Bailey et al., 1994). Fourth, heterosexual men and woman may differ and homosexual men might be hyperfeminine relative to heterosexual women, whereas homosexual women might be hypermasculine relative to heterosexual men.

As reviewed in Chapter One, previous work on the mating psychology of homosexual individuals has shown different patterns among homosexual men and women. Apart from sexual partner preference, homosexual men tend to be sex-typical for the majority of domains of mating psychology previously examined. In contrast, homosexual women show a more mosaic pattern, with some aspects of mating psychology being sex-typical and others being sex-atypical.

Here, I examined mate retention behaviour and assessed how men and women in homosexual relationships behaved relative to men and women in heterosexual relationships. To date, only a couple of studies have analyzed the influence of sexual relationship type on mate retention behaviour. Vasey (2004) showed that female Japanese macaques (*Macaca fuscata*) employed male-typical tactics of aggressive competition and sexual coercion to retain same-sex sexual partners when male competitors tried to usurp those partners. In contrast, Hunt, Newman, Warner, Wingfield, and Kaiwi (1985) showed that in female western gulls (*Larus occidentalis*) that form same-sex pairs, the partners did not exhibit male-typical mate retention behaviours. For example, they did not court each other in a male-typical manner (e.g., head tossing and courtship feeding), and they did not react to intruders in a male-typical manner.

The objectives of the current investigation were twofold. First, I sought to identify mate retention tactics for which heterosexual sex differences existed. Second, with respect to those sexually dimorphic mate retention tactics, I examined whether, and in what ways, homosexual men and women behaved in a sex-typical or sex-atypical manner. I considered how this information could be used to narrow the range of candidate hypotheses for baseline heterosexual sex differences in mate retention tactics where they existed. In light of the previous work on the mating psychology of homosexual men, I was also interested in determining whether they tended to be sex-typical in terms of their mate retention behaviour. Likewise, I was interested in assessing whether the mate retention behaviour of homosexual women was sex-atypical, in keeping with previous findings pertaining to their mating psychology, or sex-typical, in line with some of the available cross-species data.

METHOD

Participants

Participants were recruited by advertising the study in four ways: (1) on public notice boards at the University of Lethbridge, (2) on public notice boards at the University of Alberta, (3) at the Toronto Pride festival, and (4) by emailing 110 mailing lists belonging to university and community gay, lesbian, bisexual, and transgender (GLBT) as well as GLBT ally organizations located across Canada. In all cases, it was stated that the study focused on understanding how sexual behaviour and sexual preference influence behaviour within relationship contexts. Those people interested in participating completed a paper and pencil questionnaire by either coming to our on-campus research office or receiving the questionnaire through the mail. A third option of completing the questionnaire on the Internet was also available.

A total of 355 individuals who indicated that they were involved in a relationship, or had been during the past year, were included as participants in the study. Each participant provided information regarding the mate retention behaviour of his or her relationship partner. Partners were divided into four groups based on sex and whether the relationship context was homosexual or heterosexual. The number of partners for each group was: 83 women in heterosexual relationships, 120 men in heterosexual relationships, 73 women in homosexual relationships, and 79 men in homosexual relationships (hereto referred to as heterosexual women, heterosexual men, homosexual women, and homosexual men, respectively).

I assessed whether the four groups differed with respect to variables that may have influenced mate retention behaviour. Hence, I tested for group differences in age of

participant (in years), age of partner (in years), age disparity (age of participant – age of partner), length of relationship (in months), and relationship closeness (measured using a 7 point Likert scale with 1 = “not close at all,” and 7 = “extremely close”). One-way analysis of variance (ANOVA) showed that group differences existed for age of participant, $F(3, 351) = 31.33, p < .001$, age of partner, $F(3, 351) = 25.67, p < .001$, age disparity, $F(3, 351) = 2.69, p < .05$, and relationship closeness, $F(3, 351) = 2.87, p < .05$, but not for length of relationship, $F(3, 351) = 1.67, p = .17$). The means and standard deviations for all of these variables according to sex of partner (i.e., man or woman) and relationship type (i.e., heterosexual or homosexual) are shown in Table 2.1, which also highlights the specific group differences that were determined using Fisher’s Least Significant Difference (LSD). As described in the Results section, group differences in these relationship variables were controlled for when analyzing group differences in mate retention behaviour.

Measures of Mate Retention Behaviour

A version of the Mate Retention Inventory Questionnaire (MRIQ) similar to the one developed by Buss (1988c) was used in the current study. The MRIQ was created by using an *act nomination procedure* developed by Buss and Craik (1983). Buss asked university undergraduates to list *specific behaviours* that they or people they knew performed as means of avoiding the loss of relationship partners to others. Buss then used the nominated acts to create the MRIQ and organized the acts into two broad types: (1) “Intersexual Manipulations” (occurring between members of the dyadic relationship) and (2) “Intrasexual Manipulations” (occurring between one member of the dyadic relationship and a third party). These two broad categories were further subdivided into

Table 2.1. Means (M) and standard deviations (SD) for relationship variables according to partner sex and relationship type.

	HeM		HeW		HoM		HoW	
	M	SD	M	SD	M	SD	M	SD
Age of Participant (in years) ^{b,c,d,e,f}	20.89	3.23	23.73	7.75	30.47	11.84	28.97	8.34
Age of Partner (in years) ^{c,d,e,f}	22.10	4.55	23.01	6.88	29.94	10.24	29.4	9.34
Age Disparity (Participant – Partner) ^{b, c}	-1.25	3.11	.51	2.75	.41	7.84	.01	5.74
Relationship Length (in months)	22.05	36.72	24.61	43.26	32.41	46.84	32.95	37.24
Relationship Closeness ^{a,c,g}	5.86	1.43	5.63	1.29	5.28	1.75	5.67	1.39

Note: Heterosexual men (HeM), heterosexual women (HeW), homosexual men (HoM), and homosexual women (HoW).

^aAbsolute range, 1-7.

^bStatistically significant difference ($p < .05$) between heterosexual men and women.

^cStatistically significant difference ($p < .05$) between heterosexual and homosexual men.

^dStatistically significant difference ($p < .05$) between heterosexual men and homosexual women.

^eStatistically significant difference ($p < .05$) between heterosexual women and homosexual men.

^fStatistically significant difference ($p < .05$) between heterosexual and homosexual women.

^gStatistically significant difference ($p < .05$) between homosexual men and women

five separate subcategories: “Positive Inducements Occurring Intersexually,” “Direct Guarding,” “Negative Inducements Occurring Intersexually,” “Public Signals of Possession,” and “Negative Inducements Occurring Introsexually.” Within each of the five subcategories were discrete types of behavioural tactics, of which there were 19 in total. Thus, the two broad categories, five subcategories, and 19 tactics comprised the mate retention behaviour taxonomy. This taxonomy can be seen in Table 2.2.

Shackelford, Goetz, and Buss (2005) established the psychometric validity of the MRIQ by showing concordance among self and partner ratings of how often individuals engaged in the different mate retention tactics.

Participants were given the following instructions: “On the following pages are listed a series of acts or behaviours. In this study, we are interested in how often, if at all, your partner has performed each act within the past year, within the context of your relationship with her/him. Please circle the word that represents your most accurate estimate of how often (s)he has performed each act within the past year. If (s)he has not performed the act at all within the past year, circle “Never;” circle “Rarely,” “Sometimes,” “Often” to represent your best estimate of the relative frequency with which (s)he has performed each act in the past year.” Ratings of “Never,” “Rarely,” “Sometimes,” and “Often” were coded as 1, 2, 3, and 4, respectively. The version of the MRIQ used in this study included 103 of the 105 items included in the original questionnaire developed by Buss (1988c). The original version contained two items regarding pregnancy in the “Commitment Manipulation” category, one of which was removed to avoid redundancy. Also, the one remaining item pertaining to either becoming pregnant or impregnating one’s partner was not included for men in

homosexual relationships due to a lack of applicability. One of the two acts referring to wearing fashionable clothes in the “Appearance Enhancement” category was also removed to avoid redundancy. See Buss (1988c) for a complete list of the acts that comprise the mate retention tactic taxonomy. See Appendix A for a list of the acts used in the current study.

RESULTS

Standardized inter-item reliabilities (alphas) were calculated. Alpha coefficients for each of the mate retention tactics according to group, as well as overall, are presented in Table 2.2. In general, reliability values were appreciable.

Due to group differences in age of participant, age of partner, age disparity, and relationship closeness, these variables were controlled for in the analyses pertaining to mate retention behaviour. The main effects of sex and sexual orientation and the interaction of these factors were not relevant to assessing how homosexual individuals behaved relative to same- and opposite-sex heterosexual individuals. Therefore, the mate retention behaviour of the four groups was compared using one-way analysis of covariance (ANCOVA). The relevant direct group comparisons were performed using Fisher’s LSD, but only when the results of the ANCOVAs were statistically significant as a means of limiting the likelihood of Type I error.

Table 2.3 lists the results of the one-way ANCOVAs (*F*-values) for each of the mate retention categories as well as the means and standard errors for each of the four groups. These analyses yielded statistically significant effects of group toward mate retention behaviour for 14 of the 19 mate retention tactics. Below, I detail the specific

group differences that existed for these 14 tactics according to the sub-categories to which they belonged.

Intersexual Manipulations: Direct Guarding

The levels of significance for group differences as well as the effect sizes (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men for all tactics within the subcategory of "Direct Guarding" are presented in Fig. 2.1. Heterosexual men engaged in the tactics of "Vigilance" and "Monopolize Mate's Time" more than homosexual women. Heterosexual women engaged in "Vigilance" more than homosexual men and women, and "Monopolize Mate's Time" more than members of the other three groups.

Intersexual Manipulations: Negative Inducements

The levels of significance for group differences as well as the effect sizes (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men for all tactics within the subcategory of "Negative Inducements Occurring Intersexually" are presented in Fig. 2.2. Heterosexual men engaged in "Punish Infidelity Threat" and "Derogation of Competitors" less than heterosexual women. Heterosexual men performed "Commitment Manipulation" less than homosexual men, and "Emotional Manipulation" more than homosexual men. In comparison to homosexual women, heterosexual men engaged in "Emotional Manipulation" and "Punish Infidelity Threat" more often. Heterosexual women engaged in "Commitment Manipulation" less than homosexual men, but engaged in "Emotional Manipulation," "Punish Infidelity Threat," and "Derogation of Competitors" more than homosexual men.

Table 2.2. Standardized inter-item reliabilities (alphas) for each mate retention tactic according to group and all groups combined.

Category (number of items)	HeM	HeW	HoM	HoW	Combined
Intersexual Manipulations					
Direct Guarding					
Vigilance (9)	.85	.84	.88	.82	.86
Concealment of Mate (4)	.81	.78	.66	.79	.75
Monopolize Mate's Time (5)	.87	.83	.81	.75	.83
Negative Inducements					
Commitment Manipulation (3) ^a	.38	.32	.61	.52	.50
Threaten Infidelity (4)	.74	.90	.76	.80	.79
Emotional Manipulation (8)	.90	.87	.86	.84	.87
Punish Infidelity Threat (7)	.83	.80	.74	.78	.81
Derogation of Competitors (7)	.82	.86	.84	.71	.84
Positive Inducements					
Emphasizing Love and Care (5)	.76	.68	.60	.65	.69
Sexual Inducements (5)	.73	.69	.45	.68	.66
Submission and Debasement (5)	.73	.60	.69	.70	.67
Resource Display (6)	.81	.88	.81	.79	.84
Appearance Enhancement (5)	.86	.73	.70	.77	.79
Intrasexual Manipulations					
Public Signals of Possession					
Possessive Ornamentation (5)	.40	.63	.58	.56	.53
Verbal Signals of Possession (5)	.50	.49	.75	.61	.59
Physical Signals of Possession (5)	.77	.75	.73	.79	.77
Negative Inducements					
Derogation of Mate to Competitors (5)	.51	.69	.74	.62	.63
Intrasexual Threats (6)	.86	.83	.75	.74	.84
Violence (5)	.96	.64	.73	.71	.82

^a Includes two acts for homosexual men.

Note: Heterosexual men (HeM), heterosexual women (HeW), homosexual men (HoM), and homosexual women (HoW).

Table 2.3. Results of the one-way ANCOVAs (*F*-values) comparing the mate retention behaviour of heterosexual men (HeM), heterosexual women (HeW), homosexual men (HoM), and homosexual women (HoW).

Category ^a	HeM		HeW		HoM		HoW		<i>F</i>
	M	SE	M	SE	M	SE	M	SE	
Intersexual Manipulations									
Direct Guarding									
Vigilance	1.67	.05	1.78	.06	1.60	.06	1.45	.06	5.17**
Concealment of Mate	1.26	.05	1.28	.05	1.33	.06	1.13	.06	2.36
Monopolize Mate's Time	1.55	.06	1.77	.07	1.47	.08	1.30	.08	6.35***
Negative Inducements									
Commitment Manipulation	1.65	.06	1.60	.07	1.91	.08	1.53	.08	4.79**
Threaten Infidelity	1.48	.05	1.40	.07	1.50	.07	1.36	.07	1.02
Emotional Manipulation	1.56	.06	1.56	.07	1.37	.07	1.29	.07	3.77*
Punish Infidelity Threat	1.50	.05	1.66	.06	1.36	.06	1.28	.06	6.94***
Derogation of Competitors	1.36	.05	1.63	.06	1.45	.06	1.22	.06	9.31***
Positive Inducements									
Emphasizing Love and Care	3.32	.05	3.32	.06	3.19	.06	3.46	.06	3.24*
Sexual Inducements	1.97	.06	2.16	.06	1.98	.07	1.83	.07	3.98**
Submission and Debasement	1.91	.05	1.80	.06	1.71	.06	1.53	.07	6.58***
Resource Display	2.63	.06	2.16	.07	2.29	.07	2.41	.07	10.66***
Appearance Enhancement	2.51	.07	3.19	.08	2.52	.08	2.49	.08	20.07***
Intrasexual Manipulations									
Public Signals of Possession									
Possessive Ornamentation	1.60	.05	1.52	.06	1.53	.07	1.66	.07	1.03
Verbal Signals of Possession	2.17	.06	2.33	.07	2.02	.07	2.04	.07	4.19**
Physical Signals of Possession	2.90	.06	2.92	.07	2.60	.07	2.83	.07	4.15**
Negative Inducements									
Derogation of Mate to Competitor	1.09	.03	1.15	.03	1.17	.03	1.08	.03	2.17
Intrasexual Threats	1.31	.04	1.27	.05	1.19	.05	1.13	.05	2.89*
Violence	1.06	.02	1.06	.02	1.02	.02	1.04	.02	< 1

^aAbsolute range, 1-4.

* $p < .05$

** $p < .01$

*** $p < .001$

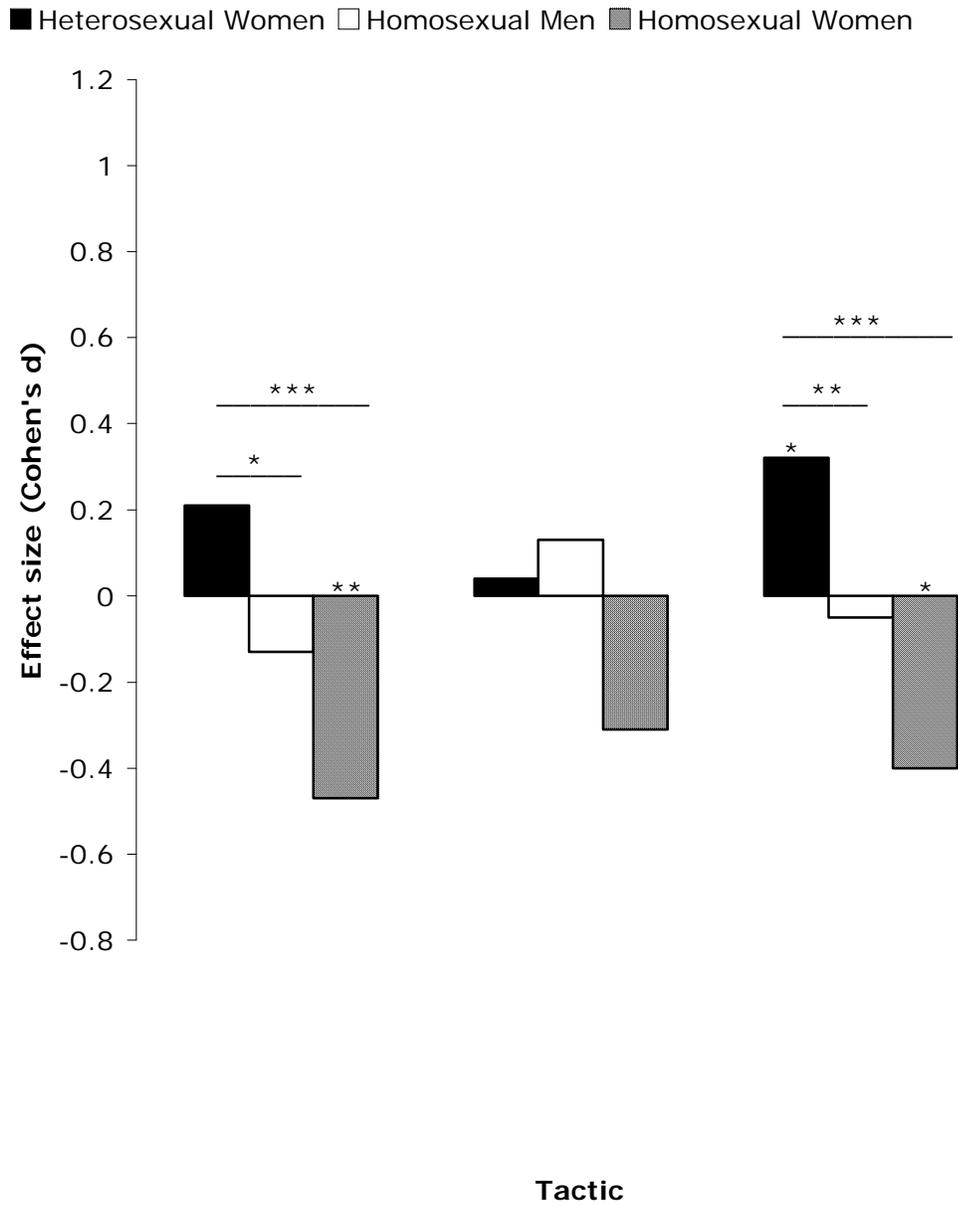


Figure 2.1. Intersexual Manipulations: Direct Guarding. Effect size differences (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men.

Note: Levels of statistical significance denote differences in group means.

* $p < .05$ ** $p < .01$ *** $p < .001$

Heterosexual women engaged in “Emotional Manipulation,” “Punish Infidelity Threat,” and “Derogation of Competitors” more than homosexual women. Homosexual men engaged in “Commitment Manipulation” and “Derogation of Competitors” more than homosexual women.

Intersexual Manipulations: Positive Inducements

The levels of significance for group differences as well as the effect sizes (Cohen’s *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men for all tactics within the subcategory of “Positive Inducements Occurring Intersexually” are presented in Fig. 2.3. In comparison to heterosexual women, heterosexual men engaged in “Resource Display” more often and “Sexual Inducements” and “Appearance Enhancement” less often. Heterosexual men engaged in “Submission and Debasing” and “Resource Display” more often than both homosexual men and women. Heterosexual women engaged in “Appearance Enhancement” more than homosexual men. In comparison to homosexual women, heterosexual women engaged in “Sexual Inducements,” “Submission and Debasing,” and “Appearance Enhancement” more often, but “Resource Display” less often. In comparison to homosexual women, homosexual men engaged in “Emphasize Love and Care” less often, and “Submission and Debasing” more often.

Intrasexual Manipulations: Public Signals of Possession

The levels of significance for group differences as well as the effect sizes (Cohen’s *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men for all tactics within the subcategory of “Public Signals of

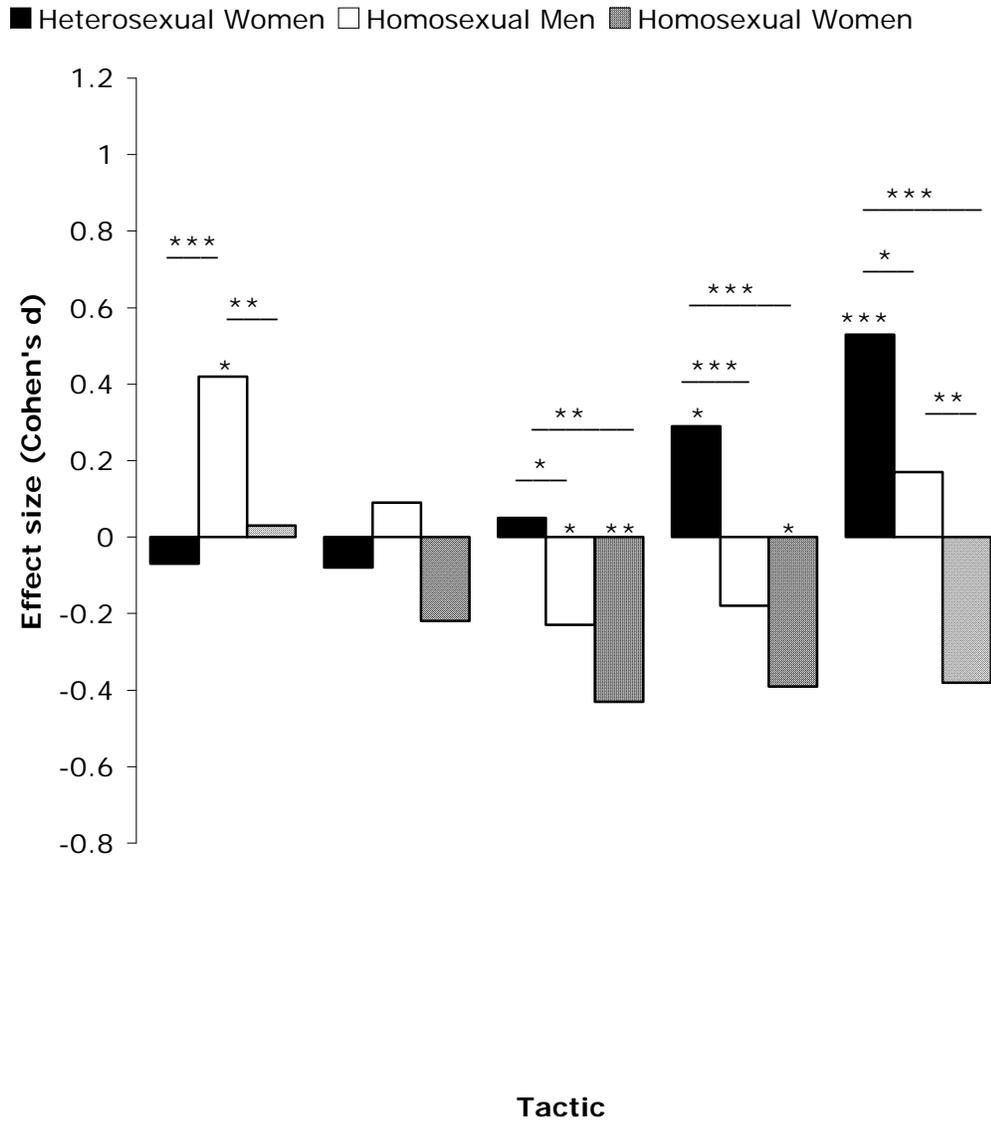


Figure 2.2. Intersexual Manipulations: Negative Inducements. Effect size differences (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men.

Note: Levels of statistical significance denote differences in group means.

* $p < .05$ ** $p < .01$ *** $p < .001$

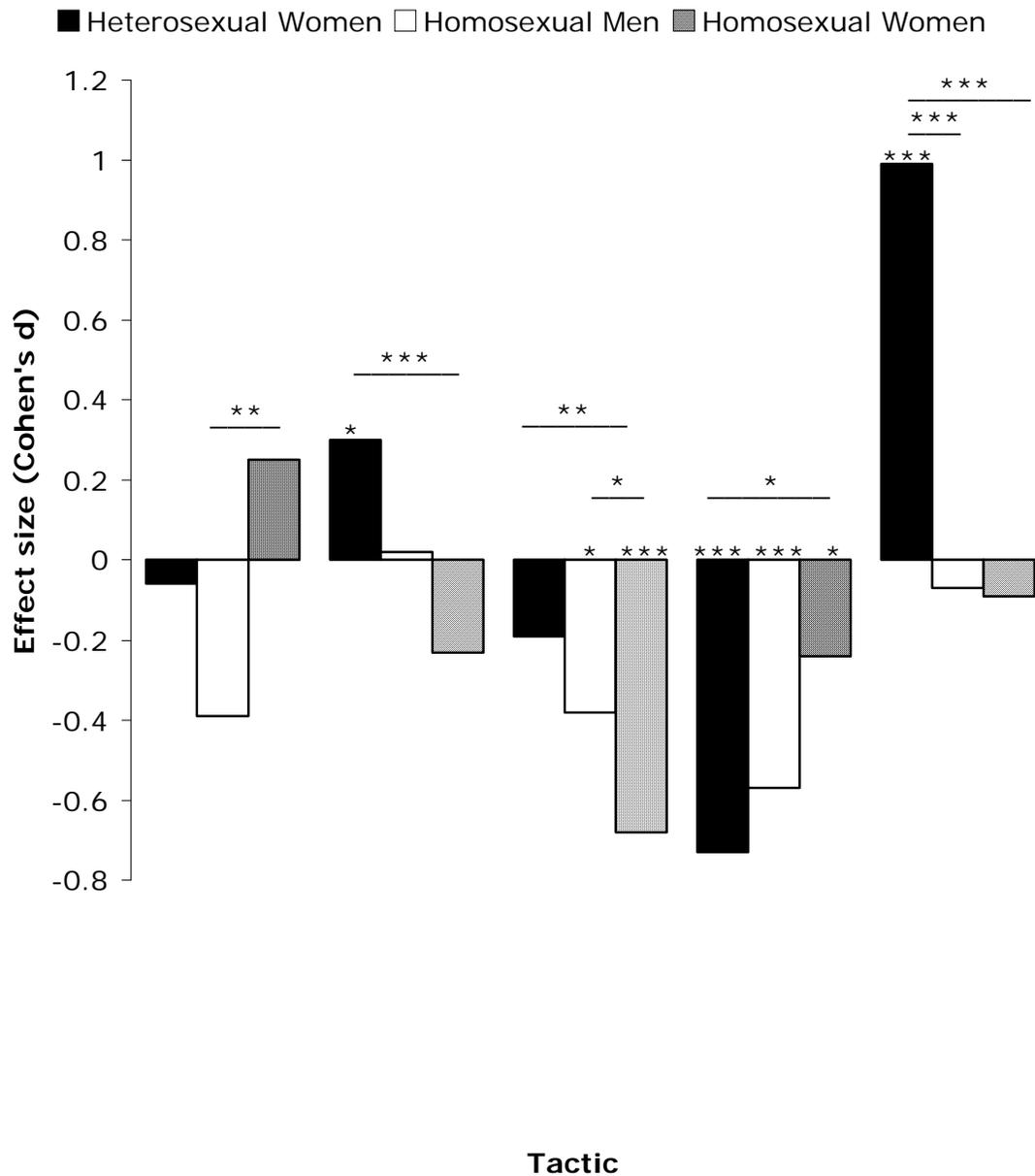


Figure 2.3. Intersexual Manipulations: Positive Inducements. Effect size differences (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men.

Note: Levels of statistical significance denote differences in group means.

* $p < .05$ ** $p < .01$ *** $p < .001$

Possession” are presented in Fig. 2.4. Homosexual men engaged in “Physical Signals of Possession” less often than the other three groups. In addition to these differences, heterosexual women engaged in “Verbal Signals of Possession” more than both homosexual men and women.

Intrasexual Manipulations: Negative Inducements

The levels of significance for group differences as well as the effect sizes (Cohen’s *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men for all tactics within the subcategory of “Negative Inducements Occurring Intrasexually” are presented in Fig. 2.5. Both heterosexual men and women engaged in “Intrasexual Threats” more often than homosexual women.

DISCUSSION

In this study, I examined the influence of sex and sexual orientation on one aspect of mating psychology: mate retention. Previous research has demonstrated that, aside from their sex-atypical sexual partner preference, homosexual men tend to be sex-typical for numerous other aspects of mating psychology (Bailey et al., 1994; Chivers, 2006; Chivers et al., 2004; Harris, 2002; Kenrick et al., 1995; Rullo et al., 2006; Silverthorne & Quinsey, 2000). In contrast, in addition to their sex-atypical sexual partner preference, homosexual women tend to be sex-atypical for numerous other aspects of their mating psychology (Bailey et al., 1994; Chivers, 2006; Harris, 2002; Kenrick et al., 1995; Rullo et al., 2006; Silverthorne & Quinsey, 2000). The results presented here echo these previously established patterns of sex-typicality in homosexual male mating psychology versus sex-atypicality in homosexual female mating psychology. Six of the 19 mate retention tactics I analyzed were sexually dimorphic. In light of the stated goals for this

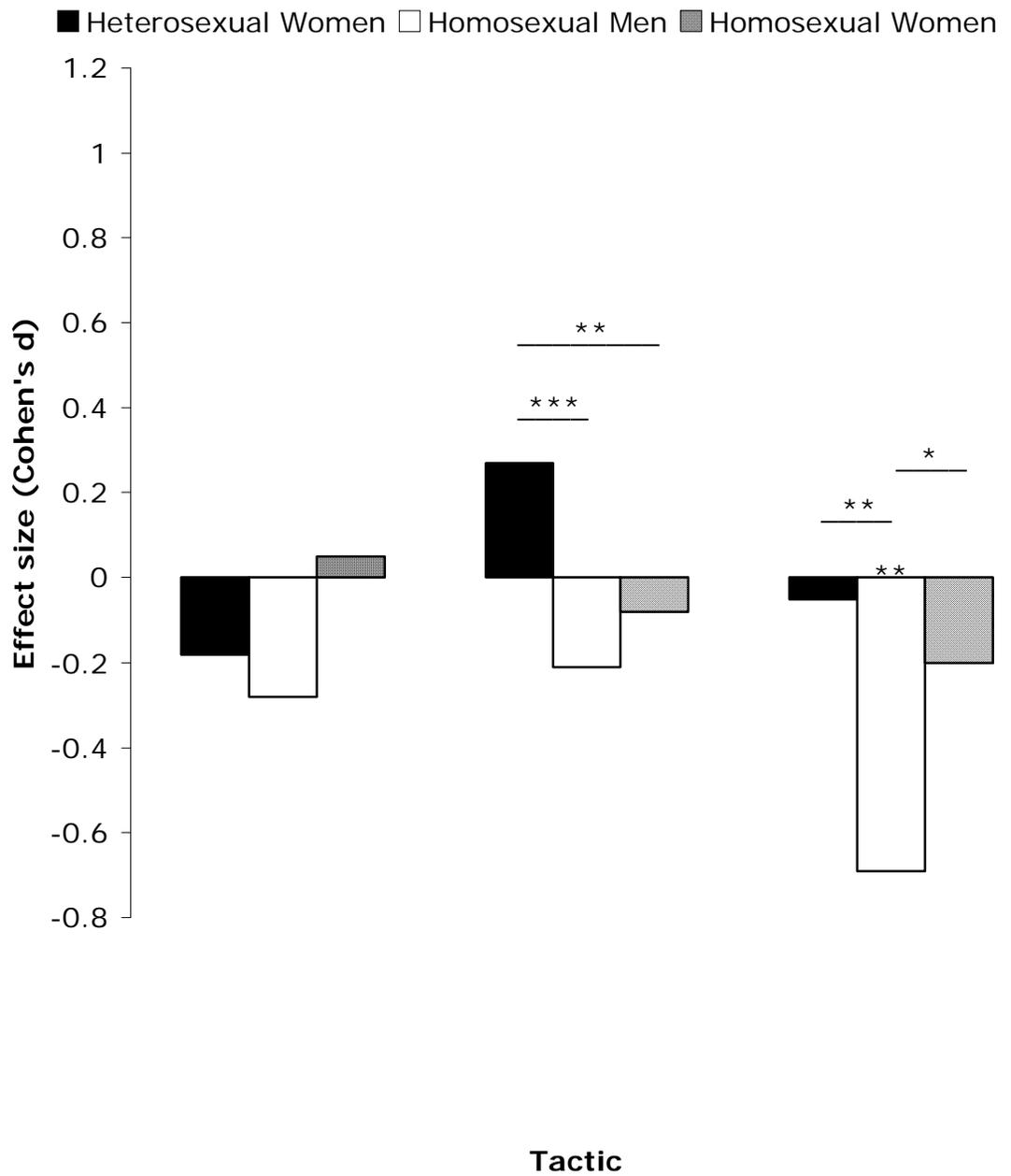


Figure 2.4. Intrasexual Manipulations: Public Signals of Possession. Effect size differences (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men.

Note: Levels of statistical significance denote differences in group means.

* $p < .05$ ** $p < .01$ *** $p < .001$

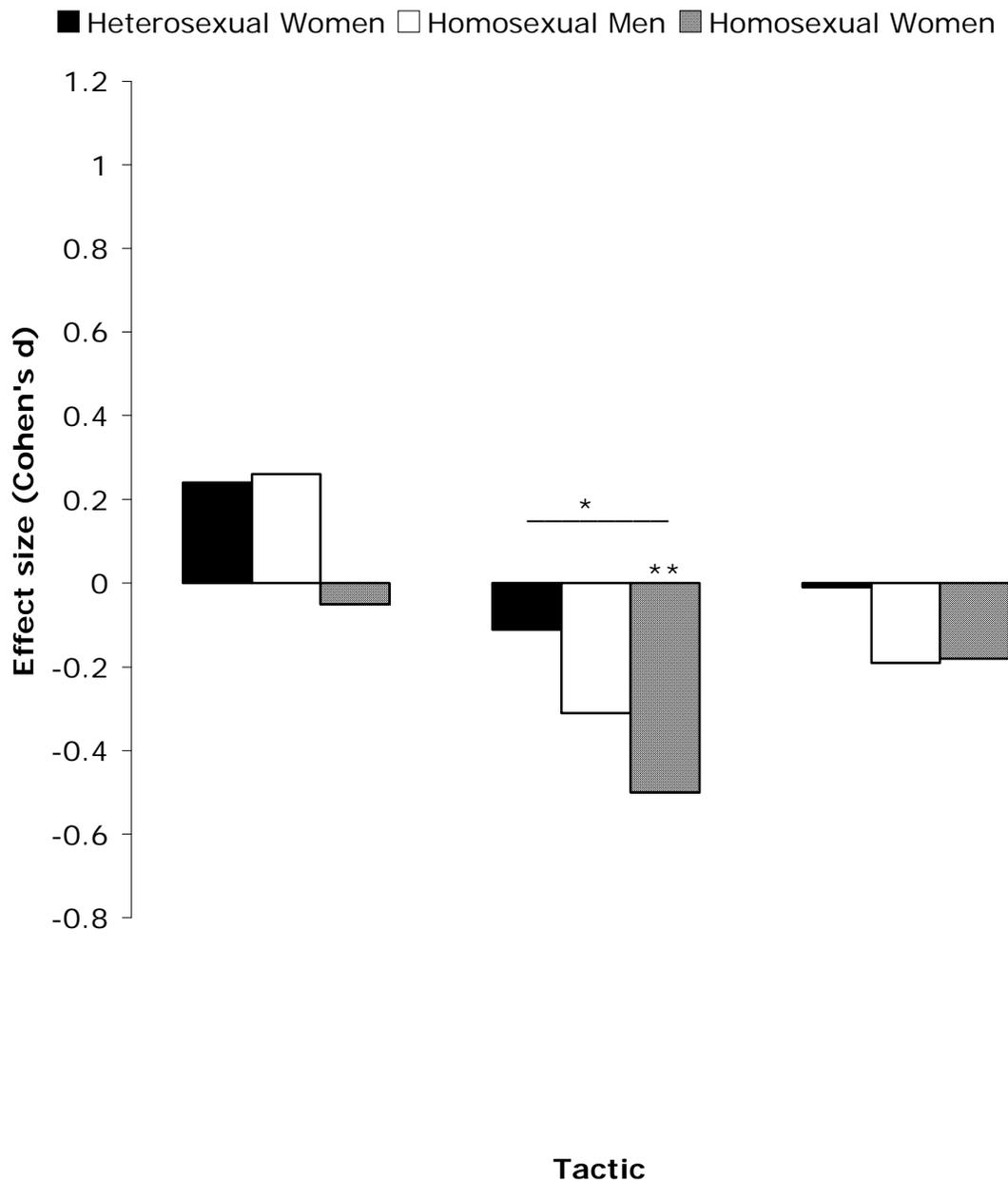


Figure 2.5. Intrasexual Manipulations: Negative Inducements. Effect size differences (Cohen's *d*) for heterosexual women, homosexual men, and homosexual women relative to heterosexual men.

Note: Levels of statistical significance denote differences in group means.

* $p < .05$ ** $p < .01$ *** $p < .001$

study, I restrict my discussion to consideration of these six mate retention tactics for which heterosexual sex differences were documented. Heterosexual men engaged in the tactic of “Resource Display” (e.g., “Spent a lot of money on partner”) more often to remain attractive to their partners. Heterosexual women deterred their male partners from forming relationships with other women by engaging in the tactics of “Monopolize Mate’s Time” (e.g., “Monopolized partner’s time at the social gathering”), “Punish Infidelity Threat” (e.g., “Became angry when partner flirted too much”), and “Derogation of Competitors” (e.g., “Told partner the other man/woman was stupid”), and engaged in the tactics of “Sexual Inducements” (e.g., “Gave into partner’s sexual requests”) and “Appearance Enhancement” (e.g., “Dressed nicely to maintain partner’s interest”) more often to remain attractive to their partners. These results parallel previous findings for sex differences in these six mate retention tactics (Buss, 1988c; Buss & Dedden, 1990; Buss & Shackelford, 1997). To date, sex differences in human mate retention tactics have only been investigated from an evolutionary perspective (Buss, 1988c; Buss & Dedden, 1990; Buss & Shackelford, 1997). The specific patterns observed in this study were consistent with evolutionary predictions concerning sex differences in the use of mate retention tactics and their relationship to the dimorphic reproductive strategies of men and women.

The data indicated that there were no sexual orientation differences in men for five of the sexually dimorphic mate retention tactics documented. This pattern indicates an overall trend toward sex-typical mate retention behaviour in homosexual men. Homosexual men engaged in the tactics of “Monopolizing Mate’s Time,” “Punish Infidelity Threat,” “Derogation of Competitors,” and “Appearance Enhancement” at similar frequencies in comparison to heterosexual men, but not heterosexual women. For

the tactic “Sexual Inducements,” homosexual men did not differ significantly from heterosexual men or women, which might be interpreted as indicative of sex-atypicality intermediate between heterosexual men and women. However, the effect size difference between heterosexual and homosexual men for “Sexual Inducements” was considerably smaller (Cohen’s $d = .02$) than the effect size difference between heterosexual women and homosexual men (Cohen’s $d = .31$), suggesting that this latter comparison would more likely yield a statistically significant difference with a larger sample size. Therefore, it would be most appropriate to categorize homosexual men’s performance of “Sexual Inducements” as sex-typical.

Given that homosexual men performed these five mate retention tactics at similar frequencies in comparison to heterosexual men, certain hypotheses for the behaviour of heterosexual men can be downgraded as possible explanatory frameworks. For example, the argument that heterosexual men have less need to engage in “Derogation of Competitors” compared to women because men are more physically aggressive seems questionable. This is because homosexual men exhibit significantly less physical aggression compared to heterosexual men (Ellis, Hoffman, & Burke, 1990; Gladue & Bailey, 1995), yet they still engage in “Derogation of Competitors” at levels similar to those of heterosexual men. Instead, I suggest, in line with Bailey et al. (1994), that hypotheses that emphasize the role of cognitive, social, or biological factors common to both homosexual and heterosexual men represent the best avenues for future investigation into the developmental processes underlying men’s mate retention behaviour for these five tactics. For example, due to their similar level of interest in uncommitted sex, heterosexual and homosexual men may spend increased amounts of

time, relative to heterosexual women, searching for novel sexual partners and, as a result, less time is available to be spent engaging in the tactic “Monopolizing Mate’s Time.”

In men, a sexual orientation difference was found for only one of the sexually dimorphic mate retention tactics documented here. Homosexual men performed “Resource Display” significantly less than their heterosexual counterparts, but they did not differ from heterosexual women for this tactic. In light of this pattern, hypotheses for the behaviour of heterosexual men that emphasize similarities between all men, regardless of sexual orientation, can be eliminated as possible explanatory frameworks. For example, the argument that heterosexual men engage in “Resource Display” more than women simply because men, in general, are more socially powerful and, therefore, in control of resources, does not seem viable given that homosexual men differ from heterosexual men, but not heterosexual women, for “Resource Display.” Rather, as Bailey et al. (1994) suggest, it is likely that this type of sex-atypical pattern in mating psychology will be best explained by cognitive, social, or biological factors common to both homosexual men and heterosexual women. One potential explanation for why this difference exists is that men, regardless of sexual orientation, are relatively unconcerned with a partner’s social status (Bailey et al., 1994) and, by extension, signals of status such as “Resource Display.” Consequently, homosexual men and heterosexual women likely have little to gain from attempting to retain male partners by offering resources. In contrast, heterosexual men routinely engage in “Resource Display” because the targets of their sexual interest, heterosexual women, are interested in the procurement of resources (Schmitt, 2005).

In women, sexual orientation differences existed for all six of the sexually dimorphic mate retention tactics that I documented. Three general patterns emerged. First, homosexual women differed significantly from heterosexual women, but not from heterosexual men, in terms of “Derogation of Competitors,” “Sexual Inducements,” and “Appearance Enhancement,” indicating a male-typical pattern of sex-atypicality among homosexual women for these three tactics. Given that homosexual women perform these three mate retention tactics at similar frequencies to heterosexual men, a number of hypotheses for heterosexual sex differences can be eliminated as possible explanatory frameworks for the behaviour of heterosexual women. For example, the argument that heterosexual women engage in “Appearance Enhancement” more than heterosexual men because they have been socialized by their parents to strive for cultural ideals of feminine physical beauty seems unlikely. This is because heterosexual and homosexual women experience similar patterns of socialization in childhood (Bell, Weinberg, & Hammersmith, 1981), yet homosexual women engage in significantly less “Appearance Enhancement” than their heterosexual counterparts.

In line with Bailey et al. (1994), it is likely that this type of sex-atypical pattern in mating psychology will be best explained by cognitive, social, or biological factors common to both homosexual women and heterosexual men. For example, women, regardless of sexual orientation, tend to be less interested in a partner’s physical attractiveness than men (Bailey et al., 1994). Consequently, both homosexual women and heterosexual men have little to gain by employing “Appearance Enhancement” as a mate retention tactic compared to heterosexual women. In contrast, heterosexual women routinely engage in “Appearance Enhancement” because the targets of their sexual

interest, heterosexual men, value physical attractiveness (Schmitt, 2005). Alternatively, homosexual women and heterosexual men may be similar in that they reject female-typical modes of “Appearance Enhancement,” albeit for somewhat different reasons. Homosexual women may do so because they repudiate gender role expectations for women that emphasize physical beauty (Brown, 1987; Swami & Tovee, 2006). In contrast, heterosexual men may do so because they are socialized to adopt male-typical modes of gender role presentation, while, at the same time repudiate female-typical modes of gender role presentation (e.g., Bem, 1981; Simon & Gagnon, 1987).

Second, homosexual women engaged in “Resource Display” significantly less than heterosexual men and significantly more than heterosexual women, indicating a pattern of intermediate sex-atypicality. As such, a number of hypotheses for the heterosexual sex difference observed for “Resource Display” are rendered questionable. For example, drawing on the work of feminist scholars (e.g., Dworkin, 1981), one might argue that heterosexual women exhibit low levels of “Resource Display,” relative to heterosexual men, simply because patriarchal society limits the power of all women and, as such, their ability to access resources. However, this explanation seems, at the very least, inadequate because homosexual and heterosexual women share the same social (i.e., patriarchal) environments, yet homosexual women exhibit significantly higher levels of “Resource Display” compared to their heterosexual counterparts.

How, then, might these heterosexual sex differences in “Resource Display” be best understood in relation to the intermediate pattern exhibited by homosexual women? It is possible that homosexual women, unlike their heterosexual counterparts, reject traditional feminine stereotypes that emphasize economic dependency, while embracing

more stereotypical masculine gender roles that emphasize economic self-sufficiency (Faderman, 1991). The valuation of economic self-sufficiency by homosexual women may result in them placing less emphasis on the acquisition of resources from their partners while predisposing them toward a pattern of increased “Resource Display” indicative of greater economic self-sufficiency. It is important to note, however, that homosexual women are significantly less interested in the social status of their partners than heterosexual women (Bailey et al., 1994). Consequently, it seems reasonable to suggest that homosexual women’s tendency to engage in signals of social status, such as “Resource Display,” might be dampened down relative to heterosexual men, thereby resulting in the pattern of intermediate sex-atypicality reported here.

Third, homosexual women exhibited an exaggerated male-typical pattern for the tactics of “Monopolizing Mate’s Time” and “Punish Infidelity Threat.” Specifically, heterosexual women engaged in these two tactics significantly more than both heterosexual men and homosexual women, and heterosexual men engaged in these two tactics significantly more than homosexual women. Thus, a number of hypotheses for the heterosexual sex differences observed for these two tactics can be downgraded as potential explanations. For example, it might be argued that because heterosexual men are more interested in uncommitted sex and multiple sexual partners than heterosexual women (Schmitt, 2005), the latter are at greater risk of abandonment by their mates and, therefore, engage in “Monopolizing Mate’s Time” and “Punish Infidelity Threat” more often. However, this hypothesis does not seem feasible. Homosexual and heterosexual women’s interests in having multiple sexual partners and uncommitted sex are low and do not differ (Bailey et al., 1994), yet homosexual women engage in the two mate

retention tactics in question even less than heterosexual men. Cognitive, social, or biological factors not shared by heterosexual persons and homosexual women remain as tenable explanations for the heterosexual sex differences found for these two tactics. For example, it is possible that homosexual women engage in “Monopolizing Mate’s Time” and “Punish Infidelity Threat” less than heterosexual men and women because they place less importance on sexual exclusivity within the context of romantic relationships (Peplau & Cochran, 1983).

It is noteworthy that homosexual women tended to engage in less mate retention behaviour, generally speaking, than the other three comparison groups. Clinicians often describe homosexual women as being “extremely close” to their romantic/sexual partners and unusually focused on their relationships (e.g., Burch, 1982; Elise, 1986; Kaufman, Harrison, & Hyde, 1984; Krestan & Bepko, 1980; Lindenbaum, 1985; McCandlish, 1982; Mencher, 1997; Schreurs & Buunk, 1996). If this is indeed the case, then homosexual women may have a relatively lower risk of being abandoned by their relationship partners, thus mitigating the need to engage in higher levels of mate retention behaviour. However, this hypothesis is not supported given that heterosexual individuals reported similar levels of relationship closeness as homosexual women, yet engaged in higher levels of mate retention behaviour. Moreover, I controlled for perceived relationship closeness in all of the analyses that I applied to the mate retention data presented here. Therefore, it is unlikely that the relatively low levels of mate retention behaviour exhibited by homosexual women in this study are attributable to higher levels of relationship closeness in this group.

All this being said, a clinical subset of homosexual women are known to engage in relationships that are “excessively close” and that are characterized by an inability on the part of the partners to function autonomously (e.g., Burch, 1982; Elise, 1986; Kaufman et al., 1984; Krestan & Bepko, 1980; Lindenbaum, 1985; McCandlish, 1982; Schreurs & Buunk, 1996). Clinicians argue that within such relationships one or both partners may seek to achieve autonomy by having sexual or romantic affairs (Burch, 1982; Elise, 1986; Krestan & Bepko, 1980; Lindenbaum, 1985). Based on these observations, I predict that homosexual women engaged in these types of excessively close relationships would exhibit high levels of mate retention behaviour. Indeed, there is some evidence that women in this clinical subset engage in elevated levels of behaviour that could be construed as mate guarding and vigilance. For example, one partner may insist on sharing all activities, ranging from doing laundry to socializing with friends (Elise, 1986; Kaufman et al., 1984). During work hours, one partner may maintain regular contact with the other via telephone calls (Kaufman et al., 1984). My sample of homosexual women was drawn from the general population and, as such, I would not predict that they would exhibit elevated levels of mate retention behaviour comparable to the type of clinical lesbian populations described here.

It is important to stress that the hypotheses I eliminate and generate here are not exhaustive. Rather, they are intended to illustrate how the study of sexual orientation differences in mate retention behaviour can inform our understanding of basic heterosexual sex differences in mating behaviour by circumscribing the field of candidate hypotheses. This approach can help guide future research towards viable and testable

hypotheses for heterosexual sex differences in this domain that fit with the insights provided by sexual orientation differences.

The possibility of sample bias is an issue common to many studies involving homosexual participants. In the current study, more homosexual participants, relative to heterosexual participants, completed the study through the mail and Internet. This means homosexual participants may have lived in a greater variety of geographic regions. In Canada, social environments can vary considerably over geographic regions (Bone, 2001). Consequently, the demographic backgrounds of homosexual participants and their relationship partners may have differed from those of heterosexual participants and their relationship partners. For example, there may have been greater regional, ethnic, and socioeconomic diversity among homosexual participants and their relationship partners. Whether such variables affected the findings I presented here is equivocal. The extent to which heterosexual and homosexual participants and their partners differed in terms of such variables, if at all, is not certain. Also, the effects of such variables on the mate retention tactics considered here are not known.

An additional variable that may have affected the results of the current study is parental status. Given the putative importance of mate retention behaviour for reproductive success (Buss, 1988b; Buss, 1988c; Buss & Shackelford, 1997; Mellen, 1981), it seems reasonable to suggest that having offspring may affect such behaviour. Because homosexual individuals are less likely to be parents, this factor may have confounded our heterosexual-homosexual comparisons. In any case, the effect of parental status on the development of the mate retention tactics considered here has yet to be investigated systematically. Examination of this topic represents a potentially important

line of future research for further understanding the development of men and women's mate retention behaviour. Furthermore, because age likely correlates with parental status, the effect of parental status may have particularly important implications for understanding mate retention behaviour differences among older heterosexual and homosexual individuals.

The data presented here add to a long list of studies examining the mating psychology of heterosexual and homosexual men and women, which, when pooled together, reveal a consistent pattern. Overall, apart from sexual partner preference, the mating psychology of homosexual men appears to be sex-typical whereas that of homosexual women appears to be sex-atypical. Therefore, in men, but not women, the development of sexual partner preference seems to be isolated from the development of additional aspects of mating psychology. In other words, the developmental processes that produce mating psychologies may have generalized effects in women, but not in men. Theoretical frameworks for explaining the development of same-sex sexual partner preference in men and women will be strengthened if they also explain why additional aspects of mating psychology are gender-shifted in homosexual women, but not homosexual men.

CHAPTER THREE

Mating Psychology: The Search for Proximate Mechanisms

ABSTRACT

One of the most important aims of psychological research is to document the proximate mechanisms underlying behaviour because understanding such mechanisms is paramount to identifying how behaviour is influenced. Given the importance of identifying the psychological mechanisms that underlie behaviour, here I provide examples of how data presented in this thesis can inform our understanding of the psychological mechanisms involved in the production of mate retention behaviour. In addition, I detail some possible ways to use the information presented in the preceding chapters to help identify psychological mechanisms that may be underlying various domains of mating psychology and behaviour. Finally, I consider how information provided in this thesis can illuminate our understanding of how sexual partner preference develops.

The preceding chapters have detailed and exemplified the utility of comparing the mating psychology and behaviour of heterosexual and homosexual men and women. As highlighted, this comparative method can help further our understanding of the processes that give rise to the heterosexual sex differences in question. In particular, I demonstrated how using this comparative method makes it possible to generate and eliminate hypotheses regarding the origins of heterosexual sex differences in mate retention tactic use.

The major focus of the preceding chapters was explaining cognitive, social, and biological influences towards heterosexual sex differences in mating psychology and behaviour, with an emphasis on mate retention tactic use. Yet, an equally worthwhile pursuit is the identification of the psychological mechanisms that are likely to be involved in the production of mating psychology and behaviour. Indeed, one of the chief aims of psychological research is to document how the brain produces behaviour (i.e., proximate causation). Researchers and theorists, both past and present, have emphasized the importance of accurately describing the psychological mechanisms that give rise to behaviour (e.g., Barrett, Henzi, & Rendall, 2007; Lehrman, 1953; Povinelli, Bering, & Giambrone, 2000; Rendall, Notman, & Vokey, 2007). Understanding such mechanisms is key to accurately depicting how external factors, such as environmental contingencies, and internal factors, such as the activity of other related mechanisms that affect the output of the mechanism in question, influence and form the bases of behaviour. Providing an accurate depiction not only entails identifying the psychological mechanisms involved in the production of a behaviour, but also, how such mechanisms develop and interact with one another.

The Cognitive Bases of Mate Retention Behaviour

Previous research regarding the origins of sexual dimorphisms in the mate retention tactics considered in Chapter Two has focused on whether men and women's behaviour in this domain conforms to predictions derived from evolutionary theory, and more specifically, an adaptationist approach to evolution (Buss, 1988c; Buss & Shackelford, 1997). As such, the main concern has been whether men and women's mate retention behaviour shows evidence of adaptive design. Adaptive behavioural patterns have been interpreted as indications that natural selection shaped the mate retention behaviour of men and women. However, given that behaviour is, at a more proximate level, the product of underlying psychological mechanisms, an obvious question that has yet to be seriously considered in the mate retention literature remains unanswered: What psychological mechanisms were favoured in men and women by natural selection?

One particularly adaptationist approach to cognition has been forwarded by Cosmides and Tooby (1992, 1994). They argue that evolutionarily significant problems, such as retaining mates, create the selection pressure necessary to forge new specialized mental modules. Because a specific selection pressure brings about these mental modules, they evolve in a relatively discrete fashion, encapsulating all the qualities necessary to attend to the evolutionarily significant problem in question and promote the adaptive behavioural response. This suggestion would seem to posit, then, that there are a vast multitude of mental modules, each of which gives rise to a unique behavioural solution that "fits" a particular adaptive problem. Furthermore, this perspective suggests that psychological mechanisms are as adapted and distinctly useful for solving particular evolutionarily significant problems as the behaviours they underlie.

For some theorists, however, hypothesizing the existence of such mental modules raises serious concerns (Fodor, 2000; Gould & Lewontin, 1979; Gould & Vrba, 1982; Lehrman, 1953; Rendall et al., 2007). As these theorists collectively note, such hypotheses fail to appreciate the constraints placed on the evolution of psychological systems. To begin with, the ability to maintain a system in which each evolutionarily significant problem is attended to by a specialized mental module would be constrained by physiological limitations (e.g., metabolics). In addition, such hypotheses seem to neglect that adaptive behaviours could be produced by co-opting psychological mechanisms that originally arose for other purposes and using them in new ways (Gould & Vrba, 1982). Given the necessary constraints placed on cognitive design by physiology, this latter approach seems more feasible within the context of natural selection, a process that favours both efficiency *and* economy of design. Furthermore, this latter approach toward cognitive design is more appreciative of the fact that organisms consist of multiple inter-dependent and integrated systems.

A consideration of the data I presented regarding the mate retention behaviour of heterosexual and homosexual men and women raises similar concerns. For example, consider the findings pertaining to the sexually dimorphic mate attraction tactics of “Resource Display,” “Sexual Inducements,” and “Appearance Enhancement.” Heterosexual men exhibited “Resource Display” more than heterosexual women, while heterosexual women exhibited the latter two tactics more than heterosexual men. According to the adaptationist approach of Cosmides and Tooby (1992, 1994), these findings suggest that men possess a mental module that is specialized for promoting displays of resource holdings, and women possess specialized mental modules that

promote advertising sexual receptivity and physical beauty. Yet, consideration of how the behaviour of men and women in homosexual relationships relates to that of men and women in heterosexual relationships for these mate attraction tactics prompts us to examine the manner in which we conceptualize the cognitive designs underlying these behaviours.

Let us first consider the cognitive basis of men's "Resource Display." As Buss (1988c) and Buss and Shackelford (1997) argue, heterosexual men's greater use of "Resource Display" represents a male-specific adaptation for increasing attractiveness. In line with Cosmides and Tooby's (1992, 1994) view of cognition, one possible psychological mechanism underlying this adaptation is a specialized male-specific mental module that promotes "Resource Display" in the presence of a potential or actual partner. However, this view requires modification given that homosexual men seem to be sex-typical for aspects of mating psychology beyond sexual partner preference, but do not show similar levels of "Resource Display" in comparison to heterosexual men.

Instead, adapted psychological mechanisms that promote "Resource Display" may only be activated in romantic contexts involving women specifically, as opposed to partners in general. As such, the activity of such mechanisms would be contingent on additional mechanisms that function to evaluate whether the context is appropriate (i.e., whether a female romantic or sexual partner is present). This speculative cognitive model of men's "Resource Display" is capable of accounting for the sexual orientation difference among men in "Resource Display." However, this model still embodies the adaptationist approach in that it posits that selection endowed men with a specialized psychological mechanism for promoting displays of resources.

A more favourable model of the psychological mechanisms underlying men's "Resource Display" would be one that emphasizes both efficiency *and* economy of design. As such, an alternative possibility is that heterosexual men do not possess a specialized adapted "Resource Display" mechanism, but rather, simply learn to engage in elevated levels of "Resource Display" through their interactions with heterosexual women, who tend to place a greater degree of importance on a partner's resource holdings (Bailey et al., 1994). There are at least two reasons why this learning based approach to heterosexual men's "Resource Display" is more favourable. First, conceptualizing heterosexual men's "Resource Display" as being based on learning mechanisms frees us from having to invoke the notion that there is some specialized adapted module underlying such behaviour. Second, by relying on learning, heterosexual men would be allowing their environment, and specifically, the level of emphasis women place on resources, to guide their behaviour in romantic contexts. Consequently, this would make it easier for them to gauge the minimal resource expenditure required to maintain attractiveness, and thus, allow for optimal resource allocation toward other fitness enhancing goals (e.g., survival, provisioning of offspring, procurement of additional mates).

In line with emphasizing efficiency and economy of design, women's mate attraction tactics could potentially be accounted for by simple learning mechanisms. That is, women in opposite- and same-sex relationships may learn the partner preferences that are typical of their sexual targets and adjust their mate attraction tactic use accordingly. Because men place greater importance on a partner's physical attractiveness and sexual receptivity (for review, see Schmitt, 2005), it makes sense that heterosexual women are

more likely to retain their male partners through “Appearance Enhancement” and “Sexual Inducements.” At the same time, it makes sense that women in same-sex relationships engage in these tactics less frequently because their female partners place relatively less importance on a partner’s physical attractiveness and sexual receptivity (Bailey et al., 1994).

With respect to “Resource Display,” women in same-sex relationships exhibited a pattern that was intermediate between that of heterosexual men and women. Simple learning mechanisms are also capable of accounting for this pattern. Bailey et al. (1994) found that homosexual women’s interest in partner status and resources is greater than that of heterosexual men’s, but less than that of heterosexual women’s. Hence, homosexual women’s intermediate level of “Resource Display” may simply reflect that, through learning, they calibrate their behaviour in accordance with the level of importance their partners place on partner status and resources.

Identifying Keystone Mating Psychology Mechanisms

As stated, a number of theorists have emphasized the importance of identifying psychological mechanisms and the functions they perform (e.g., Barrett et al., 2007; Lehrman, 1953; Povinelli et al., 2000; Rendall et al., 2007). At the same time, others have pointed out that biological constraints limit the number of mechanisms that organisms could possibly maintain (Fodor, 2000; Gould & Lewontin, 1979; Gould & Vrba, 1982; Lehrman, 1953; Rendall et al., 2007). Increasing psychological and behavioural capacity can be achieved by combining various psychological mechanisms. One consequence of doing so is that multiple psychological and behavioural phenomena may rely on the activity of the same mechanism, which I refer to as a *keystone* mechanism. Here, I

discuss how information presented in the preceding chapters may point to the existence of keystone mating psychology mechanisms as well as the functions they perform, and discuss avenues for further investigating these issues.

The best argument for the possible existence of keystone mating psychology mechanisms is provided by the data regarding homosexual women. As reviewed previously, homosexual women are sex-typical for interest in uncommitted sex, sexual versus emotional infidelity concerns, and sociosexuality (Bailey et al., 1994). One common theme among these domains is that they all arguably relate to the importance that women place on partnered sex, as compared to men. In addition, homosexual women are sex-typical for importance placed on a partner's physical attractiveness (Bailey et al., 1994), which could also be related to importance placed on partnered sex because a partner's physical attractiveness may be relevant to facilitating sexual arousal and gratification. Also, homosexual women exhibit sex-typical patterns of genital arousal when viewing two-person (i.e., partnered) sexual interactions (Chivers et al., 2004), but sex-atypical patterns of genital arousal when viewing men and women engaged in masturbation (Chivers, 2006). As such, perhaps the keystone mechanism underlying these sex-typical aspects of mating psychology and behaviour is one that influences level of importance placed on partnered sex. Homosexual women's sex-typicality in all of the above mentioned domains of mating psychology and behaviour might, therefore, be accounted for by sex-typical functioning of this single keystone mechanism. This speculation is parsimonious relative to the alternative that homosexual women's sex-typical mating psychology is the result of sex-typical functioning of multiple mechanisms, each of which underlies a specific domain.

Given the argument for the existence of this keystone mechanism in women, it is reasonable to suggest that a homologous mechanism also exists in men. It is also reasonable to suggest that other keystone mechanisms that underlie other domains of mating psychology and behaviour may exist as well. But, how might we investigate the existence of such mechanisms further?

The first step would involve determining which domains of mating psychology and behaviour are likely to rely on the same keystone mechanism. As such, it would be best to begin by assessing the relationships among the various domains of mating psychology in men and women. By using principal components analysis (PCA) as an exploratory tool, it would be possible to determine which domains cluster together (see Gould, 1981 for discussion of applying PCA to biological and psychological phenomena). Domains that cluster together would be more likely to rely on the same keystone mechanism than domains that do not. For example, based on homosexual women's mating psychology and behaviour, domains for which these women are sex-typical should cluster with each other and not with domains for which these women are sex-atypical. Furthermore, these clustering patterns should also be observed for heterosexual women, and for heterosexual and homosexual men as well if they possess keystone mechanisms that are homologous to women's.

Merely demonstrating that certain domains of mating psychology and behaviour tend to cluster together when using PCA would not be sufficient evidence for the existence of keystone mechanisms. First, some amount of clustering would be expected *a priori* when using this type of statistical analysis because the chief outcome of detailing principal components is the identification of major axes of variation (Gould, 1981;

Tabachnick & Fidell; 1996). Therefore, provided there is variation, any PCA performed on a set of variables, such as measures of various domains of mating psychology and behaviour, would yield some amount of clustering. As such, variables that cluster together (i.e., associate along the same axis of variation) may do so as an inevitable consequence of the analysis itself, and thus, clustering may not be indicative of a keystone mechanism. Second, just because two variables cluster with one another does not necessarily mean that the variation in each of them results from variation in a common causal factor such as a keystone mechanism. Rather, two variables may cluster with one another because separate and distinct factors that act independently cause the variation in these variables to converge.

Consequently, in order to establish the existence of keystone mechanisms, it would be necessary to show that changes in one domain within a cluster are accompanied by similar changes in the remaining domains within the same cluster. At the same time, however, domains that are not within the same cluster should not show a similar degree of change, or no change at all. One means of testing these predictions would be to employ a longitudinal method in which various domains of mating psychology and behaviour were assessed for the same group of individuals at various times. Domains that cluster together should then covary with one another over time, but not covary with domains from outside of the cluster. Another means of testing these predictions would be to employ an experimental manipulation designed to induce a shift in one of the domains within a cluster, or the hypothesized keystone mechanism itself. If all of the domains within the cluster are influenced by the state of the keystone mechanism, similar shifts

should follow in the remaining domains within the cluster, but not in domains outside of the cluster.

Given that humans display considerable psychological and behavioural complexity, but can only maintain a finite number of psychological mechanisms, the existence of keystone mechanisms seems to be a logical certainty. Some preliminary evidence for the existence of such mechanisms comes from data bearing on homosexual women's sex-typical mating psychology. For the time being, however, the number and functions of keystone mating psychology mechanisms remain tentative.

The Developmental Relationships Between Sexual Orientation and Other Mating Psychology Mechanisms

Although identifying the psychological mechanisms underlying domains of mating psychology is a worthwhile endeavour in its own right, doing so also has the potential to inform our understanding of the development of sexual orientation. When homosexual individuals exhibit sex-typical patterns of psychology and behaviour, the mechanisms underlying those patterns are likely to be developmentally isolated from mechanisms underlying sexual partner preference---for which homosexual individuals are sex-atypical (Kenrick et al., 1995). In contrast, when homosexual individuals exhibit sex-atypical patterns of psychology and behaviour, the mechanisms underlying those patterns may not necessarily be developmentally isolated from mechanisms underlying sexual partner preference. As such, by identifying psychological mechanisms underlying sexual partner preference as well as additional aspects of mating and detailing their developmental similarities and differences, it would be possible to hone in on those factors that are more likely to account for the development of sexual orientation. That

understanding the psychological mechanisms underlying mating psychology and behaviour could have such profound implications for shedding light on the development of sexual orientation underscores the importance of identifying such mechanisms.

As mentioned, based on data reviewed and presented in the preceding chapters, apart from sexual partner preference, the mating psychology and behaviour of homosexual men appears to be sex-typical. It seems unlikely, then, that the mechanisms underlying these additional aspects of mating psychology (e.g., partner age preference, mate retention, interest in visual sexual stimuli) are developmentally associated with those underlying sexual partner preference. The data bearing on homosexual women suggests they are sex-typical for some domains of mating psychology beyond sexual partner preference, and sex-atypical for others. With respect to those domains for which homosexual women are sex-typical, the mechanisms underlying these domains are likely to be developmentally isolated from those underlying sexual partner preference. In contrast, those mechanisms underlying mating psychology and behaviour for which homosexual women are sex-atypical have a greater likelihood of being developmentally linked to sexual partner preference mechanisms in women.

It is important to note that this latter conjecture regarding the development of women's mating psychology is more speculative. Alternative processes that are relatively independent from the sex-atypical development of sexual partner preference may better explain sex-atypical aspects of homosexual women's mating psychology. For example, because homosexual women have already rejected cultural notions of appropriate female sexual behaviour by virtue of their sexual orientation, they may be more likely to reject additional cultural notions surrounding female sexuality, and, as a result, show sex-

atypical interest in visual sexual stimuli (i.e., pornography) as well as sex-atypical partner age and status preferences.

With these considerations in mind, it is worth noting that there is a growing literature regarding psychological and behavioural domains that are not related to mating for which homosexual individuals are sex-atypical. To cite a few examples, homosexual men and women exhibit sex-atypical patterns in domains such as childhood behaviour (Bailey & Zucker, 1995), occupational and hobby preferences, and masculine and feminine personality characteristics (Bailey & Oberschneider, 1997; Lippa, 2000; Lippa, 2002; Lippa & Arad, 1997). Homosexual men and women are also sex-atypical for a host of cognitive abilities such as line orientation judgment, mental rotation of objects, object location memory, and verbal fluency (for review, see Wilson & Rahman, 2005). In addition, a number of studies have found that homosexual men are less physically aggressive than their heterosexual counterparts (Ellis, Hoffman, & Burke, 1990; Gladue & Bailey, 1995; Sergeant, Dickins, Davies, & Griffiths, 2006). Broadening the scope of psychological and behavioural domains considered, and thus increasing the number of psychological mechanisms compared and contrasted, would arguably increase the potential to pinpoint those factors influencing sexual orientation development.

Conclusion

As we have seen over the course of the last three chapters, the study of mating psychology and behaviour can be aided substantially by taking heterosexual as well as homosexual men and women into consideration. In Chapter Two, I demonstrated how comparing the mating psychology and behaviour of heterosexual and homosexual men and women could be used as an exploratory tool. More specifically, doing so made it

possible to hone in on those cognitive, social, and biological factors that are tenable explanations for the mate retention behaviour of heterosexual and homosexual men and women. At the same time, comparing the mate retention behaviour of heterosexual and homosexual men and women made it possible to eliminate explanations based on cognitive, social, and biological factors that are unlikely to account for the patterns observed. By paring down the list of candidate explanations, the data presented on the mate retention behaviour of heterosexual and homosexual men and women can help focus future research toward those factors that are more likely to account for sex and sexual orientation differences in this domain.

In this chapter, I showed how the information presented in the first two chapters could be used to help form a better understanding of the mechanistic bases of mating psychology and behaviour. Assessing sex and sexual orientation differences in a domain of mating psychology and behaviour makes it possible to gain insight on the psychological mechanisms responsible for its production. To illustrate this point, I discussed how the data bearing on heterosexual and homosexual men and women's mate attraction tactic use could illuminate the mechanistic bases of these behaviours.

In addition, further understanding of mating psychology and behaviour can also be gained by identifying keystone mating psychology mechanisms and the functions that these mechanisms perform. I provided a possible example of such a mechanism by reflecting on the sex-typical aspects of homosexual women's mating psychology and behaviour. I also detailed how future research might explore the issue of keystone mechanisms further. Identifying keystone mating psychology mechanisms as well as the functions they perform represents a potentially important avenue for future research.

Doing so has the potential to help document the organization of mating psychology and behaviour in men and women as well as direct attention to those factors that influence and lead to variations in various domains of mating psychology.

Finally, I discussed how the patterns of sex-typical and sex-atypical mating psychology and behaviour identified for homosexual men and women could inform our understanding of the development of sexual partner preference in men and women. Because homosexual men are sex-typical for domains of mating psychology and behaviour beyond sexual orientation, sexual partner preference mechanisms appear to be isolated from these additional domains in men. For homosexual women, the same argument can be applied. Sex-typical domains of homosexual women's mating psychology and behaviour are likely isolated from sexual partner preference mechanisms in women. However, sex-atypical domains of homosexual women's mating psychology and behaviour have a greater likelihood of being associated with the development of sexual partner preference mechanisms in women. As such, sexual partner preference mechanisms do not necessarily appear to be as isolated from the rest of mating psychology in women as they are in men. These patterns may ultimately serve as clues to help better understand the development of sexual orientation.

In sum, comparing both heterosexual and homosexual men and women in studies of mating psychology and behaviour is extremely useful. This comparative method makes it possible to focus on and direct future research toward those factors that are most likely to account for heterosexual sex differences in mating psychology and behaviour. Furthermore, by examining heterosexual and homosexual men and women, we increase our ability to gain insight into the mechanistic bases of mating psychology and behaviour

in men and women. In essence, then, using this comparative method is a valuable and effective means of answering the questions about sex differences in sexuality that have been posed by philosophers and theorists for centuries.

References

- Adkins-Regan, E. (1998). Hormonal mechanisms of mate choice. *American Zoology*, *38*, 166-178.
- Allen, L. S., Hines, M., Shryne, J. E., & Gorski, R. A. (1989). Two sexually dimorphic cell groups in the human brain. *Journal of Neuroscience*, *9*, 497-506.
- Aquinas, S. T. (1955). *The Summa Theologica* (Translated by Fathers of the English Dominican Province; revised by D. J. Sullivan). Chicago: Encyclopaedia Britannica.
- Bailey, J. M., Gaulin, S., Agyei, Y., & Gladue, B. A. (1994). Effects of gender and sexual orientation on evolutionarily relevant aspects of human mating psychology. *Journal of Personality and Social Psychology*, *66*, 1081-1093.
- Bailey, J. M., & Oberschneider, M. (1997). Sexual orientation and professional dance. *Archives of Sexual Behavior*, *26*, 433-444.
- Bailey, J. M., & Zucker, K. J. (1995). Childhood sex-typed behavior and sexual orientation: A conceptual analysis and quantitative review. *Developmental Psychology*, *31*, 43-55.
- Bakker, J., Brand, T., van Ophemert, J., & Slob, A. K. (1993). Hormonal regulation of adult partner preference in neonatally treated ATD-treated male rats. *Behavioral Neuroscience*, *107*, 480-487.
- Barrett, L., Henzi, P., & Rendall, D. (2007). Social brains, simple minds: Does social complexity really require cognitive complexity? *Philosophical Transactions of the Royal Society B*, *362*, 561-575.
- Bateman, A. J. (1948). Intra-sexual selection in *Drosophila*. *Heredity*, *2*, 349-368.
- Bell, A. P., Weinberg, M. S., & Hammersmith, S. K. (1981). *Sexual preference: Its development in men and women*. Bloomington: University Press.

- Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, 88, 369-371.
- Bone, R. M. (2001). *The regional geography of Canada*. New York: Oxford University Press.
- Brand, T., Kroonen, J. M., & Slob, A. K. (1991). Adult partner preference and sexual behaviour of male rats affected by perinatal endocrine manipulations. *Hormones and Behavior*, 25, 323-341.
- Bringle, R. G. (1995). Sexual jealousy in the relationships of homosexual and heterosexual men: 1980 and 1992. *Personal Relationships*, 2, 313-325.
- Brown, L. S. (1987). Lesbians, weight and eating: New analyses and perspectives. In Boston Lesbian Psychologies Collective (Eds.), *Lesbian psychologies: Explorations and challenges* (pp. 294-309). Chicago: University of Illinois Press.
- Burch, B. (1982). Psychological merger in lesbian couples: A joint ego psychological and systems approach. *Family Therapy*, 9, 201-208.
- Buss, D. M. (1988a). The evolution of human intrasexual competition: Tactics of mate attraction. *Journal of Personality and Social Psychology*, 54, 616-628.
- Buss, D. M. (1988b). Love acts: The evolutionary biology of love. In R. J. Sternberg & M. L. Barnes (Eds.), *The psychology of love* (pp. 100-118). New Haven, CT: Yale University Press.
- Buss, D. M. (1988c). From vigilance to violence: Tactics of mate retention in American undergraduates. *Ethology and Sociobiology*, 9, 291-317.
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12, 1-49.

- Buss, D. M., & Craik, K. H. (1983). The act frequency approach to personality. *Psychological Review, 90*, 105-126.
- Buss, D. M., & Dedden, L. (1990). Derogation of competitors. *Journal of Social and Personal Relationships, 7*, 395-422.
- Buss, D. M., Larsen, R. J., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. *Psychological Science, 3*, 251-255.
- Buss, D. M., & Schmitt, D. P. (1993). Sexual strategies theory: A contextual evolutionary analysis of human mating. *Psychological Review, 100*, 204-232.
- Buss, D. M., & Shackelford, T. K. (1997). From vigilance to violence: Mate retention tactics in married couples. *Journal of Personality and Social Psychology, 72*, 346-361.
- Byers, E. S. (1996). How well does the traditional sexual script explain sexual coercion? Review of a program of research. *Journal of Psychology & Human Sexuality, 3*, 7-25.
- Campbell, A. (2005). Aggression. In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 258-291). Hoboken, NJ: Wiley.
- Chivers, M. L. (2006, July). *Do women have a "sexual orientation"?* *Insights from female sexual psychophysiology*. Paper presented at the meeting of the International Academy of Sex Research, Amsterdam.
- Chivers, M. L., Rieger, G., Latty, E., & Bailey, J. M. (2004). A sex difference in the specificity of sexual arousal. *Psychological Science, 15*, 736-744.

- Clark, A. P. (2004). Self-perceived attractiveness and masculinization predict women's sociosexuality. *Evolution & Human Behavior, 25*, 113-124.
- Collaer, M. L., & Hines, M. (1995). Human behavioral sex differences: A role for gonadal hormones during early development? *Psychological Bulletin, 118*, 55-107.
- Cosmides, L., & Tooby, J. (1992). *The adapted mind*. Oxford: Oxford University Press.
- Cosmides, L., & Tooby, J. (1994). Origins of domain specificity: The evolution of functional organization. In L. Herschfeld & S. Gelman (eds.), *Mapping the Mind* (pp. 85-116). Cambridge: Cambridge University Press.
- Daly, M., & Wilson, M. (1988). *Homicide*. Hawthorne, NY: Aldine de Gruyter.
- Darwin, C. (1871). *The descent of man and selection in relation to sex*. London: John Murray.
- Davies, A. P. C., Shackelford, T. K., & Hass, R. G. (2007). When a "poach" is not a poach: Re-defining human mate poaching and re-estimating its frequency. *Archives of Sexual Behavior*. In press.
- Dominguez-Salazar, E., Portillo, W., Baum, M. J., Bakker, J., & Paredes, R. G. (2002). Effect of prenatal androgen receptor antagonist or aromatase inhibitor on sexual behavior, partner preference and neuronal Fos responses to estrous female odors in the rat accessory olfactory system. *Physiology & Behavior, 75*, 337-346.
- Dworkin, A. (1981). *Pornography: Men possessing women*. New York: Putnam's.
- Eagly, A. H., & Wood, W. (1999). The origins of sex differences in human behavior: Evolved dispositions versus social roles. *American Psychologist, 54*, 408-423.

- Elise, D. (1986). Lesbian couples: The implications of sex differences in separation-individuation. *Psychotherapy, 23*, 305-310.
- Ellis, L., Hoffman, H., & Burke, D. M. (1990). Sex, sexual orientation, and criminal and violent behavior. *Personality and Individual Differences, 11*, 1207-1211.
- Faderman, L. (1991). *Odd girls and twilight lovers*. New York: Columbia University Press.
- Fodor, J. L. (2000). *The mind doesn't work that way: The scope and limits of computational psychology*. Cambridge: MIT Press.
- Freud, S. (1930). *Three contributions to the theory of sex* (4th ed.). Washington: Nervous and Mental Disease Publishing Company.
- Gagnon, J. H., & Simon, W. (1973). *Sexual Conduct: The social sources of human sexuality*. Chicago: Aldine.
- Gangestad, S. W., & Thornhill, R. (1997). The evolutionary psychology of extrapair sex: The role of fluctuating asymmetry. *Evolution & Human Behavior, 18*, 69-88.
- Gerressu, M., Mercer, C. H., Graham, C. A., Wellings, K., & Johnson, A. M. (in press). Prevalence of masturbation and associated factors in a British national probability survey. *Archives of Sexual Behavior*.
- Gladue, B. A., & Bailey, J. M. (1995). Aggressiveness, competitiveness, and human sexual orientation. *Psychoneuroendocrinology, 20*, 475-485.
- Goldin, P. R. (2002). *The culture of sex in Ancient China*. Honolulu: University of Hawai'i Press.
- Gould, S. J. (1981). *The mismeasure of man*. Toronto: George L. MacLeod.

- Gould, S. J., & Lewontin, R. C. (1979). The spandrels of San Marco and the Panglossian paradigm: A critique of the adaptationist programme. *Proceedings of the Royal Society of London B*, 205, 581-598.
- Gould, S. J., & Vrba, E. S. (1982). Exaptation- A missing term in the science of form. *Paleobiology*, 8, 4-15.
- Harris, C. R. (2002). Sexual and romantic jealousy in heterosexual and homosexual adults. *Psychological Science*, 13, 7-12.
- Hunt, G. L., Newman, A. L., Warner, M. H., Wingfield, J. C., & Kaiwi, J. (1985). Comparative behavior of male-female and female-female pairs among western gulls prior to egg laying. *Condor*, 86, 157-162.
- de Jonge, F. H., Muntjewerff, J. W., Louwense, A. L., & van de Poll, N. E. (1988). Sexual behavior and sexual orientation of the female rat after hormonal treatment during various stages of development. *Hormones and Behavior*, 22, 100-115.
- Kaufman, P. A., Harrison, E., & Hyde, M. L. (1984). Distancing for intimacy in lesbian relationships. *American Journal of Psychiatry*, 141, 530-533.
- Kelliher, K. R., & Baum, M. J. (2002). Effect of sex steroids and coital experience on ferrets' preference for the smell, sight and sound of conspecifics. *Physiology & Behavior*, 76, 1-7.
- Kenrick, D. T., Keefe, R. C., Bryan, A., Barr, A., & Brown, S. (1995). Age preferences and mate choice criteria among homosexuals and heterosexuals: A case for modular psychological mechanisms. *Journal of Personality and Social Psychology*, 69, 1166-1172.

- Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia and London: Saunders.
- Kinsey, A. C., Pomeroy, W. B., Martin, C. E., & Gebhard, P. H. (1953). *Sexual behavior in the human female*. Philadelphia and London: Saunders.
- Krestan, J., & Bepko, C. S. (1980). The problem of fusion in the lesbian relationship. *Family Process, 19*, 277-289.
- Lalumière, M. L., Harris, G. T., Quinsey, V. L., & Rice, M. E. (2005). *The causes of rape: Understanding individual differences in male propensity for sexual aggression*. Washington, DC: American Psychological Association.
- Latty, E. M, Sullivan, E. A., & Bailey, J. M. (2004, May). *Gender and sexual orientation differences in self-report arousal to sexually explicit images*. Poster session at the meeting of the American Psychological Society, Chicago.
- Lehrman, D. S. (1953). Critique of Konrad Lorenz's theory of instinctive behavior. *Quarterly Review of Biology, 28*, 337-363.
- Leitenberg, H., & Henning, K. (1995). Sexual fantasy. *Psychological Bulletin, 117*, 469-496.
- Lindenbaum, J. P. (1985). The shattering of an illusion: The problem of competition in lesbian relationships. *Feminist Studies, 11*, 85-103.
- Lippa, R. A. (2000). Gender-related traits in gay men, lesbian women, and heterosexual men and women: The virtual identity of homosexual-heterosexual diagnosticity and gender diagnosticity. *Journal of Personality, 68*, 899-926.
- Lippa, R. A. (2002). Gender-related traits of heterosexual and homosexual men and women. *Archives of Sexual Behavior, 31*, 83-98.

- Lippa, R. A. (2007). The preferred traits of mates in a cross-national study of heterosexual and homosexual men and women: An examination of biological and cultural influences. *Archives of Sexual Behavior, 36*, 193-208.
- Lippa, R., & Arad, S. (1997). The structure of sexual orientation and its relations to masculinity, femininity, and gender diagnosticity: Different for men and women. *Sex Roles, 37*, 187-208.
- Malamuth, N. M., Huppin, M., & Paul, B. (2005). Sexual coercion. In D. M. Buss (Ed.). *The handbook of evolutionary psychology* (pp. 394-418). Hoboken, NJ: Wiley.
- Masters, W. H., & Johnson, V. E. (1966). *Human sexual response*. Boston: Little, Brown.
- McCandlish, B. M. (1982). Therapeutic issues with lesbian couples. *Journal of Homosexuality, 7*, 71-78.
- Mead, M. (1950). *Male and female: A study of the sexes in a changing world*. London: Victor Gollancz Ltd.
- Mellen, S. L. W. (1981). *The evolution of love*. Oxford, England: Freeman.
- Mencher, J. (1997). Intimacy in lesbian relationships: A critical reexamination of fusion. In J. V. Jordan (Ed.), *Women's growth in diversity: More writings from the Stone Center* (pp. 311-330). New York: Guilford Press.
- Oliver, M. B., & Hyde, J. S. (1993). Gender differences in sexuality: A meta-analysis. *Psychological Bulletin, 114*, 29-51.
- Peplau, L. A., & Cochran, S. D. (1983). The intimate relationships of lesbians and gay men. In E. R. Allgeier & N. B. McCormick (Eds.), *Change boundaries* (pp. 226-244). Palo Alto, CA: Mayfield.

- Phoenix, C. H., Goy, R. W., Gerall, A. A., & Young, W. C. (1959). Organizing action of prenatally administered testosterone propionate on the tissues mediating mating behavior in the female guinea pig. *Endocrinology*, *65*, 369-382.
- Plato (1993). *The Symposium* (with commentary by R. E. Allen). New Haven: Yale University Press.
- Pomerantz, S. M., Goy, R. W., & Roy, M. M. (1986). Expression of male-typical behavior in adult female pseudohermaphroditic rhesus: Comparisons with normal males and neonatally gonadectomized males and females. *Hormones and Behavior*, *20*, 483-500.
- Pomerantz, S. M., Roy, M. M., Thornton, J. E., & Goy, R. W. (1985). Expression of adult female patterns of sexual behaviour by male, female, and pseudohermaphroditic female rhesus monkeys. *Biology of Reproduction*, *33*, 878-889.
- Povinelli, D. J., Bering, J. M., & Giambrone, S. (2000). Toward a science of other minds: Escaping the argument by analogy. *Cognitive Science*, *24*, 509-541.
- Price, J. H., Allensworth, D. D., & Hillman, K. S. (1985). Comparison of sexual fantasies of homosexuals and heterosexuals. *Psychological Reports*, *57*, 871-877.
- Rendall, D., Notman, H., & Vokey, J. R. (2007). Homologizing the mind: Frodoian or Fodorian psychology. In L. Barrett & R. I. M. Dunbar (eds.), *Handbook of Evolutionary Psychology* (pp. 59-70). Oxford: Oxford University Press.
- Rieger, G., Chivers, M. L., & Bailey, J. M. (2005). Sexual arousal patterns of bisexual men. *Psychological Science*, *16*, 579-584.

- Rullo, J. E., Kinnish, K. K., & Strassberg, D. S. (2006). *Sex differences in the specificity of sexual behavior, fantasy, and romantic attraction*. Poster session at the meeting of the International Academy of Sex Research, Amsterdam.
- Schmitt, D. P. (2005). Fundamentals of human mating strategies. In D. M. Buss (Ed.). *The handbook of evolutionary psychology* (pp. 258-291). Hoboken, NJ: Wiley.
- Schmitt, D. P., Alcalay, L., Allik, J., Angleiter, A., Ault, L., Austers, I., et al. (2004). Patterns and universals of mate poaching across 53 nations: The effects of sex, culture, and personality on romantically attracting another person's partner. *Journal of Personality and Social Psychology*, *86*, 560-584.
- Schmitt, D. P., & Buss, D. M. (2001). Human mate poaching: Tactics and temptations of infiltrating existing relationships. *Journal of Personality and Social Psychology*, *86*, 560-584.
- Schreurs, K. M. G., & Buunk, B. P. (1996). Closeness, autonomy, equity, and relationship satisfaction in lesbian couples. *Psychology of Women Quarterly*, *20*, 577-592.
- Senior, C. (2003). Beauty in the brain of the beholder. *Neuron*, *38*, 525-528.
- Sergeant, M. J. T., Dickins, T. E., Davies, M. N. O., & Griffiths, M. D. (2006). Aggression, empathy and sexual orientation in males. *Personality and Individual Differences*, *40*, 475- 486.
- Shackelford, T. K., Goetz, A. T., & Buss, D. M. (2005). Mate retention in marriage: Further evidence of the reliability of the Mate Retention Inventory. *Personality and Individual Differences*, *39*, 415-425.

- Silverthorne, Z. A., & Quinsey, V. L. (2000). Sexual partner age preferences of homosexual and heterosexual men and women. *Archives of Sexual Behavior, 29*, 67-76.
- Simon, W. & Gagnon, J. H. (1987). A sexual scripts approach. In J. H. Geer & W. T. O'Donohue (Eds.), *Theories of human sexuality* (pp. 363-383). New York: Plenum Press.
- Swami, V., & Tovee, M. J. (2006). The influence of body mass index on the physical attractiveness preferences of feminist and nonfeminist heterosexual women and lesbians. *Psychology of Women Quarterly, 30*, 252-257.
- Symons, D. (1979). *The evolution of human sexuality*. New York: Oxford University Press.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using multivariate statistics* (3rd ed.). New York: HarperCollins.
- Vasey, P. L. (2004). Sex differences in sexual partner acquisition, retention, and harassment during female homosexual consortships in Japanese macaques. *American Journal of Primatology, 64*, 397-409.
- de Visser, R. O., Smith, A. M. A., Richters, J., & Rissel, C. E. (2007). Associations between religiosity and sexuality in a representative sample of Australian adults. *Archives of Sexual Behavior, 36*, 33-46.
- Walen, S. R., & Roth, D. (1987). A cognitive approach. In J. H. Geer & W. T. O'Donohue (Eds.), *Theories of human sexuality* (pp. 335-362). New York: Plenum Press.
- Wilson, G., & Rahman, Q. (2005). *Born gay: The psychobiology of sex orientation*. London: Peter Owen Publishers.

Zucker, K. J., Bradley, S. J., Oliver, G., Blake, J., Fleming, S., & Hood, J. (1996).

Psychosexual development of women with Congenital Adrenal Hyperplasia.

Hormones and Behavior, 30, 300-318.

APPENDIX A:

Taxonomy of Tactics and Acts of Mate Retention Used

Intersexual Manipulations

Direct Guarding

Vigilance

1. Called partner at unexpected times to see who partner was with.
2. Called partner to make sure partner was where (s)he said (s)he would be.
3. Had friends check up on partner.
4. Snooped through partner's belongings.
5. Questioned partner about what (s)he did when they were apart.
6. Dropped by unexpectedly to see what partner was doing.
7. Stayed close to partner while at a party.
8. At the party, did not let the partner out of his/her sight.

Concealment of Mate

1. Did not take partner to the party where other males/females would be present.
2. Refused to introduce partner to same-sex friends.
3. Took partner away from the gathering where other males/females were present.
4. Did not let partner talk to other males/females.

Monopolize Mate's Time

1. Spent all free time with partner so that partner could not meet anyone else.
2. Insisted that partner stay at home with him/her rather than going out.
3. Monopolized partner's time at the social gathering.
4. Insisted that partner spend all his/her free time with him/her.
5. Would not let partner go out without him/her.

Negative Inducements

Commitment Manipulation

1. Asked partner to marry him/her.
2. He got her or she got pregnant so that partner would stay with him/her. (Item not used for men in homosexual relationships).
3. Told partner they needed a total commitment to each other.

Threaten Infidelity

1. Flirted with another man/woman in front of partner.
2. Showed interest in other men/women to make partner angry.
3. Went out with other men/women to make partner jealous.
4. Talked to another man/woman at the party to make partner jealous.

Emotional Manipulation

1. Cried when partner said (s)he might go out with someone else.
2. Made partner feel guilty about talking to other men/women.
3. Told partner that (s)he would “die” if partner ever left.
4. Threatened to harm self if partner ever left.
5. Pleaded that (s)he could not live without partner.
6. Cried in order to keep partner with him/her.
7. Told partner that (s)he was dependent on partner.
8. Pretended to be mad so partner would feel guilty.

Punish Infidelity Threat

1. Became angry when partner flirted too much.
2. Ignored partner when (s)he started flirting with others.
3. Threatened to break up if partner ever cheated on him/her.
4. Yelled at partner after (s)he showed an interest in other men/women.
5. Said that (s)he would never talk to his/her partner again if (s)he ever saw her/him with someone else.
6. Hit partner when (s)he caught him/her flirting with someone else.
7. Became jealous when partner went out without him/her.

Derogation of Competitors

1. Cut down appearance of other males/females.
2. Started a bad rumor about another male/female.
3. Cut down the other man/woman’s strength.
4. Pointed out the other man/woman’s flaws.
5. Told partner that the other man/woman that the partner was interested in had slept with nearly everyone.
6. Told partner the other man/woman was stupid.
7. Told partner the other man/woman was just out to use him/her.

Positive Inducements

Emphasize Love and Caring

1. Told partner that (s)he loved him/her.
2. Went out of his/her way to be kind, nice, and caring.
3. Complimented partner on his/her appearance.
4. Was helpful when partner really needed it.
5. Displayed greater affection for partner.

Sexual Inducements

1. Gave into partner’s sexual requests.
2. Acted sexy to take partner’s mind off of other men/women.
3. Performed sexual favours to keep partner around.
4. Had a physical relationship with partner to deepen their bond.
5. Gave in to sexual pressure to keep partner.

Submission and Debasement

1. Told partner that (s)he would change in order to please him/her.
2. Became a “slave” to his/her partner.
3. Gave in to partner’s every wish.
4. Went along with everything partner said.
5. Acted against his/her will to let partner have his/her way.

Resource Display

1. Spent a lot of money on partner
2. Bought partner an expensive gift.
3. Bought partner a bouquet of flowers.
4. Took partner out to a nice restaurant.
5. Bought partner some jewelry (e.g., ring, necklace).
6. Bought partner a small gift.

Appearance Enhancement

1. Made up his/her face to look nice.
2. Dressed nicely to maintain partner’s interest.
3. Wore the latest fashions to enhance his/her appearance.
4. Made sure that (s)he looked nice for partner.
5. Made self “extra attractive” for partner.

Intrasexual Manipulations

Public Signals of Possession

Possessive Ornamentation

1. Asked partner to wear his/her jacket.
2. Asked partner to wear his/her ring.
3. Gave partner jewelry to signify partner was taken.
4. Wore partner’s clothes in front of others.
5. Hung up a picture of partner so others would know partner was taken.

Verbal Signals of Possession

1. Introduced partner as his/her boy/girlfriend (man, woman, partner, etc.).
2. Told his/her male/female friends how much they were in love.
3. Bragged about partner to other men/women.
4. Mentioned to other men/women that partner was taken.
5. Told others the intimate things they had done together.

Physical Signals of Possession

1. Held partner’s hand when other men/women were around.
2. Kissed partner when other men/women were around.
3. Held partner closer when other man/woman walked into the room.
4. Put arm around partner in front of others.
5. Sat next to partner when others were around.

Negative Inducements

Derogation of Mate to Competitors

1. Told other men/women terrible things about partner so that they wouldn't like him/her.
2. Told other men/women that partner was not a nice person.
3. Told other men/women that partner was stupid.
4. Told other men/women that partner might have a social disease.
5. Told others the partner was a "pain."

Intrasexual Threats

1. Yelled at men/women who looked at partner.
2. Stared coldly at the other man/woman who was looking at partner.
3. Threatened to hit the man/woman who was making moves on partner.
4. Gave the man/woman a dirty look when he/she looked at partner.
5. Told the other man/woman to "stay away" from partner.
6. Confronted the man/woman who had made a pass at partner.

Violence

1. Hit the man/woman who made a pass at partner.
2. Picked a fight with the man/woman who was interested in partner.
3. Got friends to beat up man/woman who was interested in partner.
4. Vandalized the property of the man/woman who made a pass at partner.
5. Slapped the man/woman who made a pass at partner.